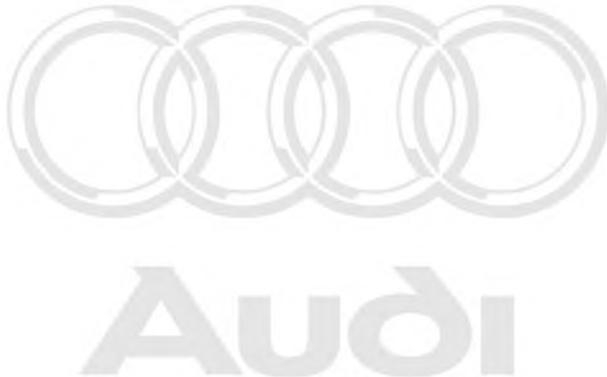


Workshop Manual

Audi A6 2011 ➤
Audi A7 Sportback 2011 ➤

**8-speed automatic gearbox 0BW hybrid, front-wheel
drive**

Edition 08.2017



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List of Workshop Manual Repair Groups

Repair Group

- 00 - Technical data
- 32 - Torque converter
- 37 - Controls, housing
- 38 - Gears, control
- 39 - Final drive - differential



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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

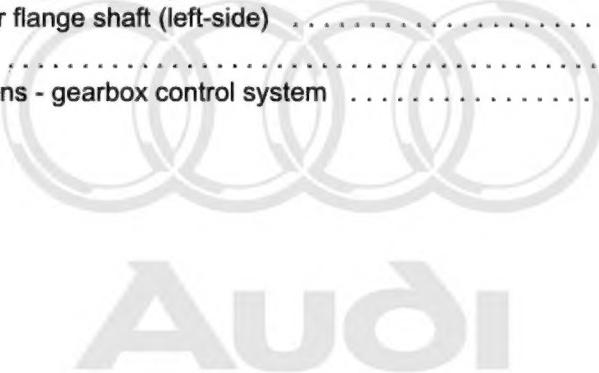
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00 – Technical data

1 Identification

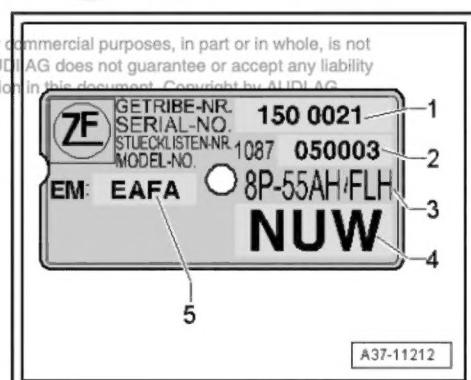
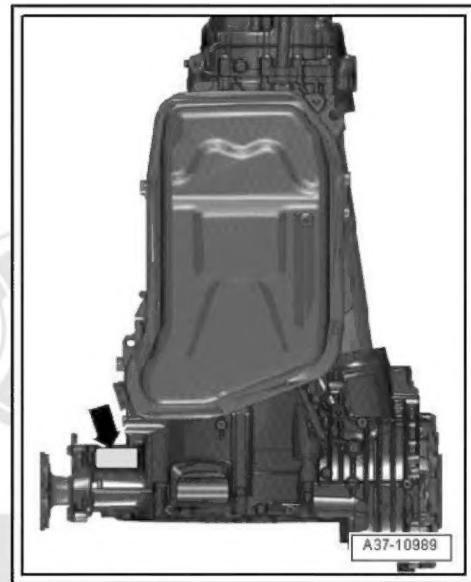
(ARL005373; Edition 08.2017)

⇒ ["1.1 Gearbox identification", page 1](#)

1.1 Gearbox identification

Location of code letters on gearbox

- ◆ The gearbox code letters are located on the identification plate on the underside of the gearbox. Fitting location of identification plate -arrow-.



Code letters and gearbox serial number

Example:

- 1 - Serial number of gearbox
- 2 - Model number
- 3 - Manufacturer's gearbox designation: 8P-55AH/FLH
- 4 - Gearbox code, in this example: NUW
- 5 - Code letters of electric drive motor - V141- , in this example: EAFA



Note

- ◆ *The code letters for the gearbox are also given on the vehicle data stickers.*
- ◆ *Location of vehicle data stickers ⇒ Maintenance ; Booklet 411 .*



2 Safety precautions

- ⇒ "2.1 Safety precautions when working on high-voltage vehicles", page 2
- ⇒ "2.2 Safety precautions when working on vehicles with start/stop system", page 6
- ⇒ "2.3 Safety precautions when using testers and measuring instruments during a road test", page 7
- ⇒ "2.4 Safety precautions when working on subframe", page 7
- ⇒ "2.5 Safety precautions when tow-starting and towing", page 7

2.1 Safety precautions when working on high-voltage vehicles

- ⇒ "2.1.1 Safety precautions for de-energising high-voltage system", page 2
- ⇒ "2.1.2 Safety precautions for re-energising high-voltage system", page 3
- ⇒ "2.1.3 General safety precautions and repair instructions", page 4

2.1.1 Safety precautions for de-energising high-voltage system

- The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician). For a definition and explanation of the relevant qualifications, please refer to ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .
- The system must first be de-energised before any work is done on the high-voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; De-energising high-voltage system .
- The types of work for which the high-voltage system has to be de-energised are indicated in the instructions for the procedure. For further information on the procedure for de-energising the high-voltage system please refer to ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .
- Read and observe all additional warnings and descriptions for work on the high-voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

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Note

In the event of queries or uncertainty regarding the terms "electrically instructed person", "Audi high-voltage technician", "Audi specialist for work on high-voltage systems" or the high-voltage system itself, the relevant importer must be contacted prior to the start of all work.

For work that requires de-energising of the high-voltage system, please note:

The high-voltage system must be de-energised according to the Guided Fault Finding routine in the vehicle diagnostic tester , and ONLY by this method.



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The qualified person (Audi high-voltage technician) confirms that the system is de-energised and uses the locking cap - T40262- to ensure that the system cannot be re-energised. As an additional precaution, the ignition key and the maintenance connector for high-voltage system - TW- are then stored in a safe place by the qualified person.*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

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2.1.2 Safety precautions for re-energising high-voltage system

- The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician). For a definition and explanation of the relevant qualifications, please refer to ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .
- Re-energising the high-voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; Re-energising high-voltage system .
- Read and observe all additional warnings and descriptions for work on the high-voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



Note

In the event of queries or uncertainty regarding the terms "electrically instructed person", "Audi high-voltage technician", "Audi specialist for work on high-voltage systems" or the high-voltage system itself, the relevant importer must be contacted prior to the start of all work.

The high-voltage system must be re-energised according to the Guided Fault Finding routine in the vehicle diagnostic tester , and ONLY by this method.

**DANGER!**

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).*
- ◆ *The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".*
- ◆ *The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).*
- ◆ *The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.*

2.1.3 General safety precautions and repair instructions

- Read and observe all additional warnings and descriptions for work on the high-voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

**Note**

In the event of queries or uncertainty regarding the terms "electrically instructed person", "Audi high-voltage technician", "Audi specialist for work on high-voltage systems" or the high-voltage system itself, the relevant importer must be contacted prior to the start of all work.



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For work in the vicinity of high-voltage components and when visually inspecting the high-voltage components:



DANGER!

Risk of fatal injury if high-voltage components are damaged.

Observe the following when working in the vicinity of high-voltage components or wiring:

- ◆ *It is not permitted to use cutting or forming tools, other sharp-edged tools or heat sources such as welding, brazing, soldering, hot air or thermal bonding equipment.*
- ◆ *Before starting work, visually inspect the high-voltage components in the areas involved.*
- ◆ *Before working in the engine compartment, visually inspect the power and control electronics for electric drive - JX1- , electric drive motor - V141- , air conditioner compressor - V470- and high-voltage wiring.*
- ◆ *Before working on the vehicle underbody, visually inspect the high-voltage wiring and covers.*
- ◆ *Before working on the rear section of the vehicle, visually inspect the high-voltage wiring and the electronics box with the maintenance connector for high-voltage system - TW- .*
- ◆ *Visually inspect all potential equalisation lines.*

Check the following when making the visual inspection:

- ◆ *There must be no external damage on any component.*
- ◆ *The insulation of the high-voltage wiring and potential equalisation lines must not be damaged.*
- ◆ *There must be no unusual deformation of the high-voltage wiring.*
- ◆ *All high-voltage components must be identified by a red warning sticker.*

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For work that requires the ignition to be switched on, please note:



DANGER!

When working on a vehicle with the ignition switched on or while the drive system is active, the engine can start unexpectedly and exhaust fumes can cause a health hazard in closed rooms. Moving parts can trap or draw in parts of the body and/or clothing (safety hazard).

Before switching on the ignition, perform the following steps:

- ◆ *Move selector lever to position P*
- ◆ *Activate parking brake*
- ◆ *Switch off ignition*
- ◆ *Open bonnet*
- ◆ *Connect battery charger (e.g. battery charger - VAS 5095A-) to jump-start connections of 12 V electrical system*
- ◆ *Switch on ignition*



General safety precautions and safety precautions for work that requires the ignition to be switched off



WARNING

Safety hazard: the engine can start unexpectedly.

Before carrying out general work on a vehicle with high-voltage electrical system, switch off the ignition and remove the ignition key from the vehicle.



WARNING

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors; otherwise the connectors can be damaged.*

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2.2 Safety precautions when working on vehicles with start/stop system

Please note the following when working on vehicles with start/stop system:



WARNING

Risk of injury due to automatic engine start on vehicles with start/stop system.

- ◆ *On vehicles with activated start/stop system (indicated by a message in the instrument cluster), the engine may start automatically if it needs to.*
- ◆ *Therefore it is important to ensure that the start/stop system is deactivated when performing repairs (switch off ignition, if required switch on ignition again).*

2.3 Safety precautions when using testers and measuring instruments during a road test

Observe the following precautions if test equipment has to be used when road-testing the vehicle.



WARNING

Accidents can be caused if the driver is distracted by test equipment or if test equipment is not secured.

Injuries can be caused if the passenger's airbag is triggered in a collision.

- *The use of test equipment while driving causes distraction.*
- *There is an increased risk of injury if test equipment is not secured.*
- ◆ *Always secure test equipment to the rear seat with a strap and have it operated from there by a second person.*

2.4 Safety precautions when working on subframe

Note the following when working on the subframe:



Caution

Risk of damage to parts of the running gear.

- ◆ *Do not let the vehicle down on the wheels if the gearbox mounting, steering rack or subframe cross brace are not properly installed.*
- ◆ *Do NOT support the vehicle at the subframe or the subframe cross brace (e.g. with a trolley jack).*

2.5 Safety precautions when tow-starting and towing



Caution

Risk of irreparable damage to gearbox.

- ◆ *When the vehicle is towed, the selector lever must be set to position "N" and the vehicle must not be towed for a distance of more than 50 km or at a speed in excess of 50 km/h.*



Note

It is not possible to start the engine by means of tow-starting, for instance in the case of insufficient battery charge or if the starter is not working.



3 Repair instructions

- ⇒ [“3.1 Rules for cleanliness”, page 8](#)
- ⇒ [“3.2 General notes”, page 8](#)
- ⇒ [“3.3 General repair instructions”, page 9](#)
- ⇒ [“3.4 Contact corrosion”, page 11](#)
- ⇒ [“3.5 Routing and attaching lines and wiring”, page 11](#)

3.1 Rules for cleanliness

- ◆ Thoroughly clean all joints and connections and the surrounding areas before disconnecting.
- ◆ Use cleaning fluid - D 009 401 04- to clean the gearbox and its components.
- ◆ Use commercially available lint-free cloths for cleaning, such as the “WYPALL X70 / WORKHORSE” cloth from Kimberly-Clark Professional.
- ◆ Seal off open lines and connections immediately with clean plugs or protective caps from engine bung set - VAS 6122- .
- ◆ After removal, place parts on a clean surface and cover them. Use sheeting or lint-free cloths.
- ◆ Carefully cover or seal open components if repairs cannot be carried out immediately.
- ◆ Only install clean components; replacement parts should only be unpacked immediately prior to installation.
- ◆ Protect unplugged electrical connectors against dirt and moisture and make sure connections are dry when attaching.

3.2 General notes

Gearbox

- ◆ The 8-speed automatic gearbox OBW hybrid has eight hydraulically actuated forward gears.
- ◆ The 8-speed automatic gearbox OBW hybrid has NO torque converter. The electric drive motor - V141- is installed in its place.
- ◆ Driving off in 1st gear is controlled by clutch B in the gearbox (also referred to as “drive-away clutch B”).
- ◆ The disengagement clutch in the electric drive motor - V141- disengages the engine from the electric drive motor - V141- . The disengagement clutch is also designated “disengagement clutch F”, or just “clutch F”.

Mechatronic unit

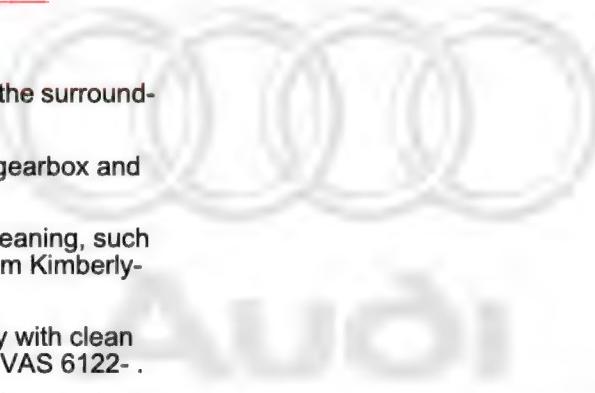
The mechatronic unit incorporates the following components as a complete synchronised unit:

- ◆ Hydraulic control system, automatic gearbox control unit - J217-
- ◆ Sensors and actuators

The mechatronic unit is installed inside the gearbox in the ATF oil pan.

Automatic gearbox control unit - J217-

The control unit is part of the mechatronic unit in the gearbox.



The gear change points are calculated automatically (depending on the driving situation and the resistance to motion).

Advantages:

- ◆ Gear change points controlled for enhanced fuel economy
- ◆ Maximum engine output is always available
- ◆ Gear-change points are adapted individually in all driving situations
- ◆ Gear-change points are infinitely variable

Self-diagnosis

Before performing repairs to the automatic gearbox, determine the cause of the fault as precisely as possible using "Guided Fault Finding".

To perform "Guided Fault Finding", use vehicle diagnostic tester .

Variation of gear-change points for gradients

An additional gear change map automatically selects gear changes for gradients. The gear changes are selected according to accelerator pedal position and road speed.

- ◆ Gear change map for extreme uphill gradients is matched to engine output.
- ◆ Gear change map for extreme downhill gradients is matched to the braking effect of the engine.
- ◆ The driver can achieve an increased engine braking effect by directly selecting a specific gear via the tiptronic function, e.g. when towing a trailer on downhill gradients.

3.3 General repair instructions

Proper tools and the maximum possible care and cleanliness are essential for satisfactory repairs to the transmission units. The usual basic safety precautions also naturally apply when carrying out repair work.

To avoid repetition, a number of generally applicable instructions for the various repair procedures are summarised here. They apply to the work described in this Manual.

Guided Fault Finding, Vehicle self-diagnosis and Test Instruments

- ◆ Before servicing the gearbox, the cause of the fault should be identified as precisely as possible using the vehicle diagnostic tester via **Guided Fault Finding**, **Vehicle Self-diagnosis** and **Test Instruments**.

Environmental and waste disposal regulations for oil

- ◆ ATF, gear oil and any other type of oil must be handled with care.
- ◆ **Dispose of drained oil properly.**
- ◆ Always adhere to statutory environmental and waste disposal regulations.
- ◆ Observe the information shown on the packaging of the oil.

Special tool

For a complete list of special tools used in this Workshop Manual
⇒ "Special tools, Workshop equipment"

Gearbox

- ◆ Observe rules for cleanliness when working on gearbox
⇒ [page 8](#).
- ◆ The engine must not be run and the vehicle must not be towed if the centre differential housing has been removed or if there is no ATF in the gearbox.
- ◆ After installing, the following fluid levels must be checked and topped up if necessary: ATF in gearbox ⇒ [page 79](#) and gear oil in gearbox ⇒ [page 112](#). Capacities ⇒ [page 12](#), specifications ⇒ Electronic parts catalogue .

O-rings, oil seals and gaskets

- ◆ Always renew O-rings, oil seals and gaskets.
- ◆ After removing gaskets and seals, always inspect the contact surface on the housing or shaft for burrs resulting from removal or for other signs of damage.
- ◆ Thoroughly clean housing joint surfaces before assembling.
- ◆ Lightly lubricate the outer circumference and sealing lip of oil seals with ATF before installing.
- ◆ Lightly lubricate O-rings with ATF before installation to prevent them from being crushed during assembly.
- ◆ Use only ATF for parts running in ATF. Other lubricants will cause malfunction of the gearbox hydraulics.
- ◆ The open side of the oil seal should face the side containing the fluid.
- ◆ When installing a new oil seal, position the seal such that the sealing lip does not contact the shaft in the same place as the old seal (make use of installation depth tolerances).
- ◆ After installing, the following fluid levels must be checked and topped up if necessary: ATF in gearbox ⇒ [page 79](#) and gear oil in gearbox ⇒ [page 112](#). Capacities ⇒ [page 12](#), specifications ⇒ Electronic parts catalogue .

Nuts, bolts

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- ◆ Loosen bolts in reverse sequence to the specified tightening sequence.
 - ◆ Bolts and nuts used to secure covers and housings must be tightened in steps according to the specified tightening sequence and method.
 - ◆ Bolts and nuts which secure covers and housings should be loosened and tightened in diagonal sequence and in stages if no tightening sequence is specified.
 - ◆ Renew self-locking nuts and bolts.
 - ◆ Use a wire brush to clean the threads of bolts which are secured with locking fluid. Then apply locking fluid - AMV 185 101 A1- to bolt threads before installing.
 - ◆ Threaded holes which take self-locking bolts or bolts coated with locking fluid must be cleaned using a thread tap or similar. Otherwise there is a danger of the bolts shearing off the next time they are removed.
 - ◆ The tightening torques stated apply to non-oiled nuts and bolts.

Locking elements

- ◆ Do not over-stretch circlips.
- ◆ Renew circlips which have been damaged or over-tensioned.

- ◆ Circlips must be properly seated in the base of the groove.

Bearings

- ◆ Install needle bearings so the lettering (side with thicker metal) faces towards the installing tool.
- ◆ Lubricate bearings with gear oil or ATF, depending on fitting location.
- ◆ Do not interchange inner or outer races of bearings of the same size.
- ◆ Always renew the tapered roller bearings on one shaft together and use new bearings from a single manufacturer.

Shims

- ◆ Use a micrometer to measure the shims at several points. Tolerance variations make it possible to obtain the exact shim thickness required.
- ◆ Check for burrs and damage. Install only shims which are in perfect condition.

3.4 Contact corrosion

Contact corrosion can occur if unsuitable fasteners are used (e.g. bolts, nuts, washers, etc.).

For this reason, only fasteners with a special surface coating are fitted.

Rubber or plastic parts and adhesives also consist of non-conductive materials.

If you are not sure whether used parts can be re-installed, always fit new parts ⇒ Electronic parts catalogue .

Please note:

- ◆ Use only genuine spare parts: these have been fully tested and are compatible with aluminium.
- ◆ We recommend the use of accessories approved by Audi.
- ◆ Damage caused by contact corrosion is not covered by warranty.

3.5 Routing and attaching lines and wiring

- ◆ Mark fuel lines, vacuum lines, pipes/hoses for activated charcoal filter system and electrical wiring etc. before removal so they can be re-installed in the original positions and correctly connected. If necessary, make sketches or take photographs.
- ◆ To avoid damaging pipes, hoses and wiring, ensure sufficient clearance from all moving or hot components in engine compartment (limited space in engine compartment).



4 Technical data

⇒ "4.1 Capacities", page 12

⇒ "4.2 Allocation of gearbox to engine", page 12

4.1 Capacities

ATF section in gearbox

Capacities	ATF section 8-speed automatic gearbox 0BW hybrid
Initial filling by manufacturer	Approx. 8.6 ltr.
Fluid filling after gearbox has been drained in workshop	Approx. 4.0 ltr.
Fluid change	◆ Change interval for ATF ⇒ Maintenance tables
Lubricant	ATF for 8-speed automatic gearbox 0BW hybrid ⇒ Electronic parts catalogue



Caution

Risk of malfunction or gearbox failure.

- ◆ Use only the ATF supplied as a replacement part for the 8-speed automatic gearbox 0BW hybrid ⇒ Electronic parts catalogue .

- ◆ ⇒ "7.1 Checking ATF level", page 79

- ◆ ⇒ "7.2 Draining and filling ATF", page 82

Gear oil in front final drive and transfer box

Capacities	Gear oil in front final drive and transfer box 8-speed automatic gearbox 0BW hybrid
Initial filling	2.0 ltr.
Oil filling after oil has been drained in workshop	Approx. 1.8 ltr.
Oil change	◆ No change required ◆ Lifetime filling; change only after repairs, e.g. if cover for front final drive has been removed
Lubricant	Gear oil for automatic gearbox 0BW ⇒ Electronic parts catalogue

- ◆ ⇒ "2.2 Checking gear oil level", page 112

- ◆ ⇒ "2.3 Draining and filling gear oil", page 115

4.2 Allocation of gearbox to engine

The following data can be found in the ⇒ Electronic parts catalogue .

- ◆ Date of manufacture
- ◆ Allocation of mechatronic unit and software for automatic gearbox control unit - J217-
- ◆ Correct type of electric drive motor - V141-

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◆ Correct type of flange shafts

Designation		8-speed automatic gearbox 0BW hybrid, front-wheel drive		
Gearbox	Code letters	NUW	NYV	PJN
Allocation	Model	Audi A6 2011►	Audi A6 2011►	Audi A6 2011►
	Engine	2.0 ltr. TFSI - 155 kW	2.0 ltr. TFSI - 155 kW	2.0 ltr. TFSI - 155 kW
Electric drive motor - V141-	Code letters	EAFA	EAFA	EAFA
Primary drive		$38 : 41 = 0.927$	$38 : 41 = 0.927$	$38 : 41 = 0.927$
Spur gear drive to front axle		$37 : 35 = 1.057$	$37 : 35 = 1.057$	$37 : 35 = 1.057$
Front axle bevel gearing		$40 : 13 = 3.077$	$40 : 13 = 3.077$	$40 : 13 = 3.077$
Overall front drive ratio = Primary drive x spur gear drive x bevel gearing		3.015	3.015	3.015
Gear oil filling in front final drive/ transfer box		Common oil filling	Common oil filling	Common oil filling

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Audi A6 2011 ➤ , Audi A7 Sportback 2011 ➤

8-speed automatic gearbox 0BW hybrid, front-wheel drive - Edition 08.2017

32 – Torque converter

1 Torque converter

The 8-speed automatic gearbox 0BW hybrid has NO torque converter. The electric drive motor - V141- is fitted in its place ⇒ Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor .



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37 – Controls, housing

1 Selector mechanism

- ⇒ "1.1 Exploded view - selector lever handle", page 15
- ⇒ "1.2 Exploded view - selector mechanism", page 16
- ⇒ "1.3 Exploded view - selector lever cable", page 18
- ⇒ "1.4 Manual release from position P", page 19
- ⇒ "1.5 Removing and installing selector lever handle",
page 19
- ⇒ "1.6 Removing and installing selector mechanism", page 22
- ⇒ "1.7 Checking selector mechanism", page 24
- ⇒ "1.8 Removing and installing selector lever cable", page 26
- ⇒ "1.9 Checking and adjusting selector lever cable", page 32
- ⇒ "1.10 Removing and installing selector lever lock solenoid N110
", page 36
- ⇒ "1.11 Removing and installing selector lever sensors control
unit J587 ", page 38
- ⇒ "1.12 Removing and installing gear selector position P switch
F305 ", page 38
- ⇒ "1.13 Renewing selector shaft oil seal", page 38

1.1 Exploded view - selector lever handle



1 - Selector lever position display - Y26-

- Removing and installing
⇒ Electrical system;
Rep. gr. 96 ; Lights; Re-
moving and installing
selector lever position
display - Y26-

2 - Multimedia system operating unit - E380-

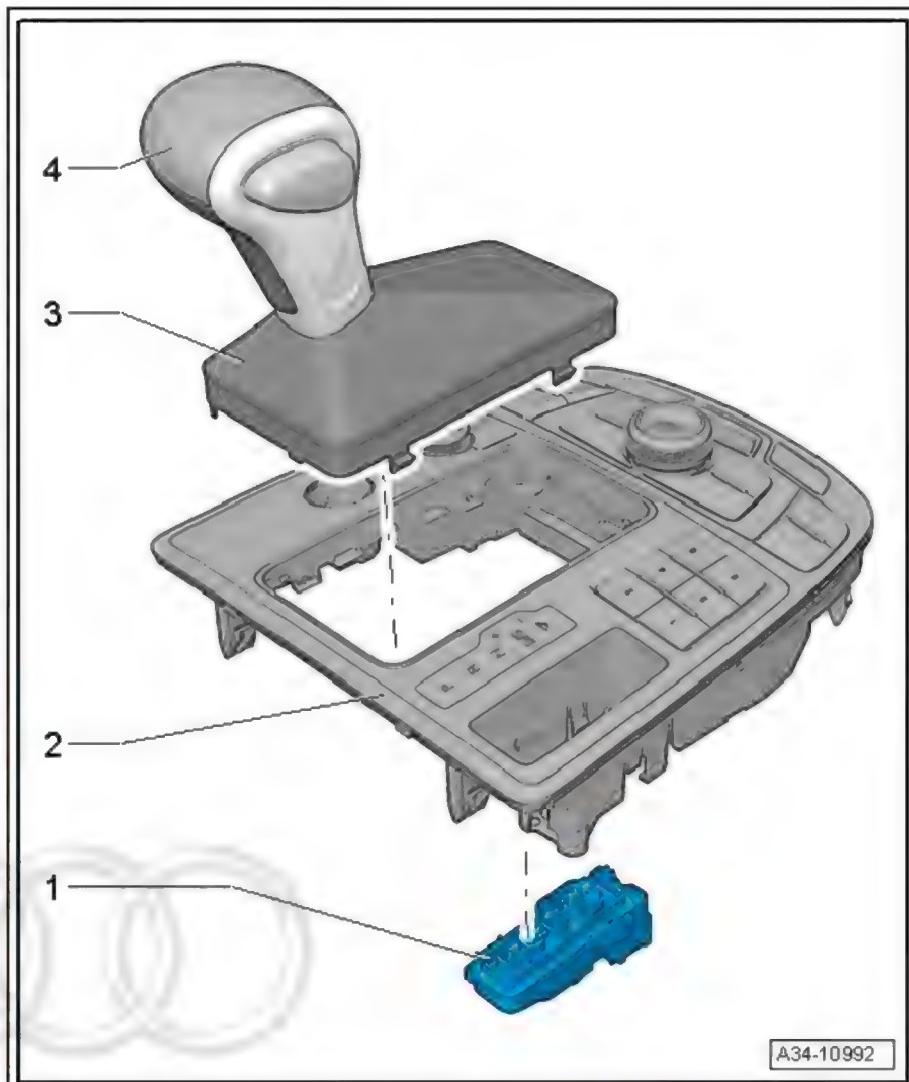
- Removing and installing
⇒ Communication;
Rep. gr. 91 ; Infotain-
ment system; Removing
and installing multime-
dia system operating
unit - E380-

3 - Selector lever boot

- Remove and install to-
gether with selector lever
handle ⇒ [page 19](#)

4 - Selector lever handle

- ⇒ [“1.5 Removing and in-
stalling selector lever
handle”, page 19](#)



1.2 Exploded view - selector mechanism



WARNING

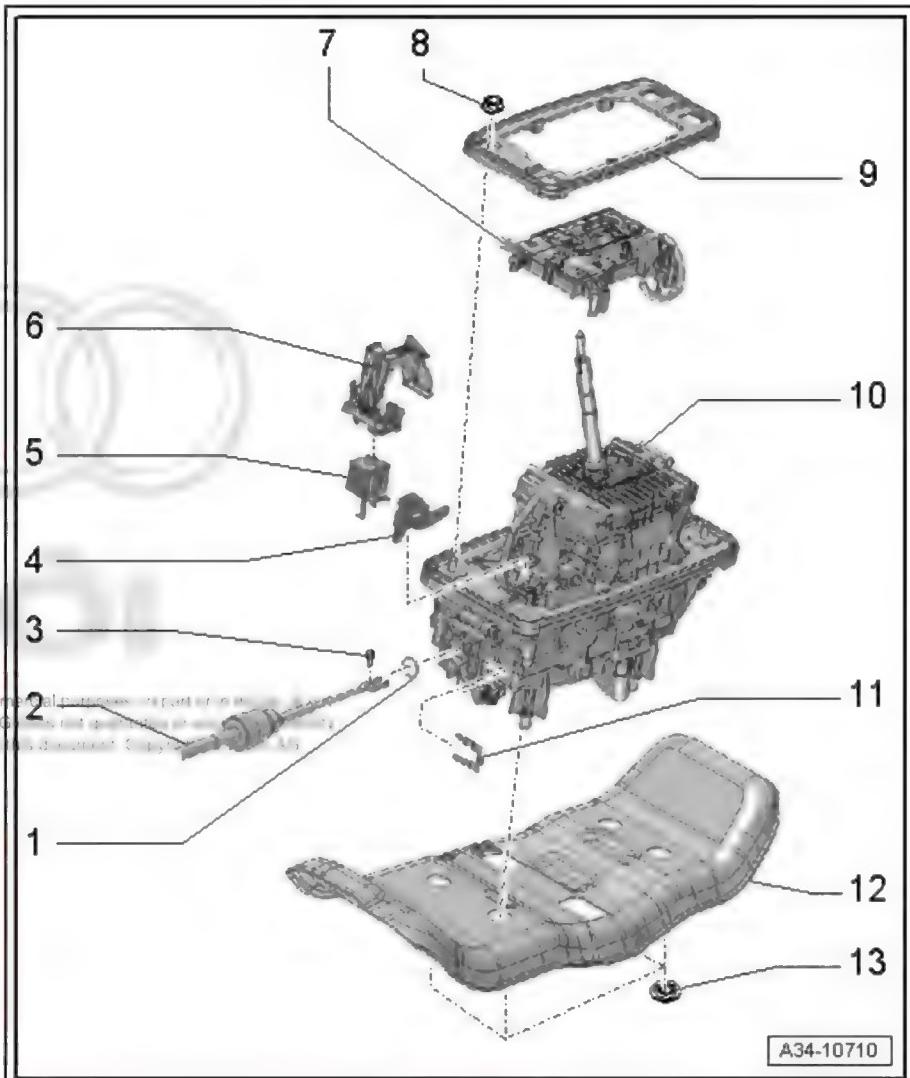
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Accidents and injury can be caused if a gear is inadvertently engaged while the engine is running.

- ◆ Prior to performing work with engine running, move se-
lector lever to position "P" and pull up parking brake button
to apply the electromechanical parking brake.

Check selector mechanism before dismantling ⇒ [page 24](#).

- 1 - O-ring
 - Renew
- 2 - Selector lever cable
 - Do not bend or kink
 - Exploded view
⇒ [page 18](#)
- 3 - Bolt
 - For adjusting selector lever cable
 - Tightening torque
⇒ [Item 5 \(page 18\)](#)
- 4 - Gear selector position P switch - F305-
 - Consists of two reed contacts on printed circuit board in selector lever lock solenoid - N110-
 - ⇒ ["1.12 Removing and installing gear selector position P switch F305", page 38](#)
- 5 - Selector lever lock solenoid - N110-
 - ⇒ ["1.10 Removing and installing selector lever lock solenoid N110", page 36](#)
- 6 - Sealing cap
 - Above selector lever lock solenoid - N110-
- 7 - Selector lever sensors control unit - J587- and tiptronic switch - F189-
 - ⇒ ["1.11 Removing and installing selector lever sensors control unit J587", page 38](#)
- 8 - Nut
 - Secures selector mechanism to body
 - 4x
 - 8 Nm
- 9 - Gasket
- 10 - Shift unit
 - Can only be renewed as a complete unit
 - ⇒ ["1.6 Removing and installing selector mechanism", page 22](#)
- 11 - Retaining clip
 - For selector lever cable
- 12 - Noise insulation
 - Not fitted on all vehicles
 - For correct version, refer to ⇒ Electronic parts catalogue
- 13 - Retaining washers
 - For noise insulation
 - 4x
 - Renew





1.3 Exploded view - selector lever cable

1 - Retaining clip

- For selector lever cable
- Renew

2 - Bolt

- 2x
- 8 Nm

3 - Selector lever cable

- Do not bend or kink
- ⇒ "1.8 Removing and installing selector lever cable", page 26
- Selector lever cable must be renewed if rubber sleeve is damaged
- Before installing, lightly lubricate ball socket with polycarbamide grease - G 052 142 A2- .
- When installing, make sure that rubber sleeve on gearbox end is not twisted
- ⇒ "1.9.1 Checking and adjusting selector lever cable", page 32
- ⇒ "1.9.2 Adjusting selector lever cable to basic setting", page 33

4 - Cable support bracket

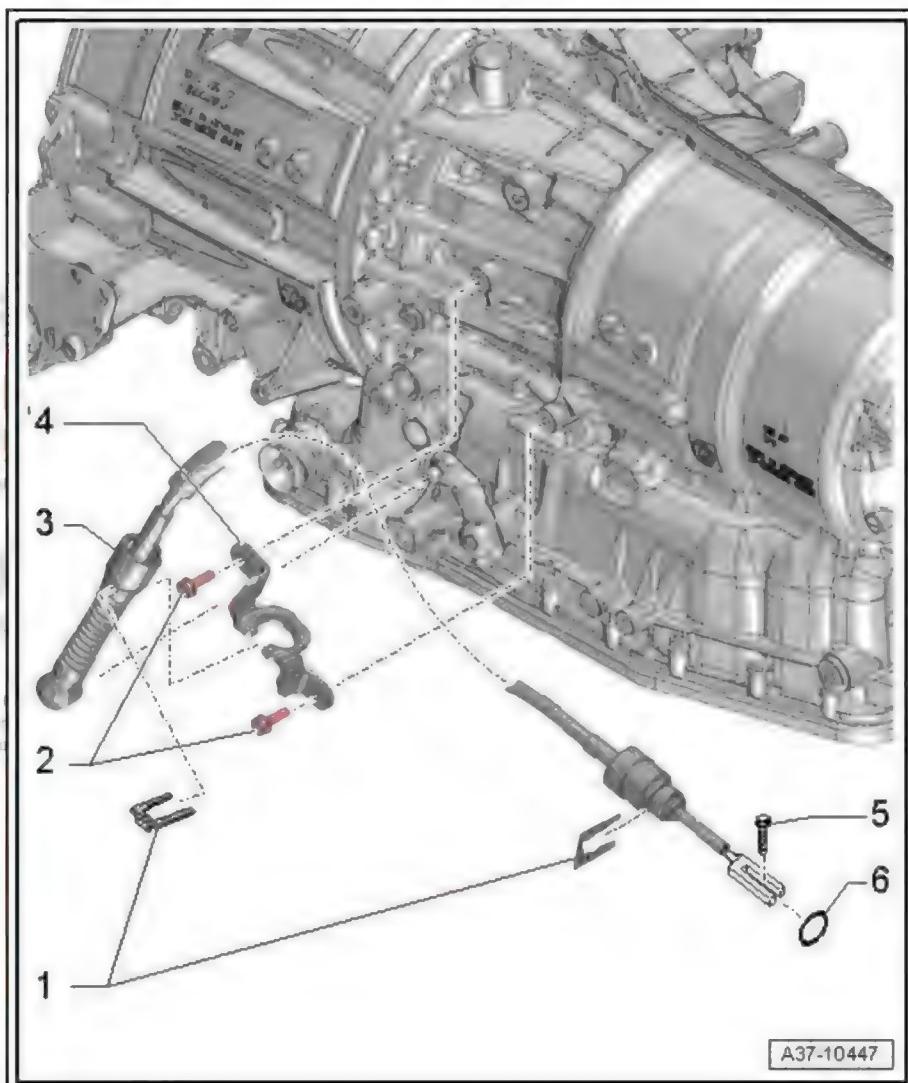
5 - Bolt

- For adjusting selector lever cable
- Secured to shift unit
- 13 Nm

6 - O-ring

- Renew

7 - Gearbox selector lever



A37-10447

Heat shield - tightening torque

- Bolts -top arrows-: 9 Nm.
- Bolt -bottom arrow-: 20 Nm.



A37-11167

1.4 Manual release from position P



Note

- ◆ If the battery is disconnected or discharged, the selector lever cannot be shifted from position "P". In this case, the vehicle cannot be pushed or towed.
- ◆ When you operate the manual release mechanism the selector lever lock solenoid - N110- will release the lock without current supply.

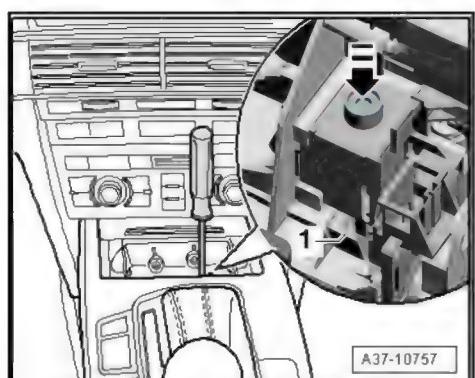
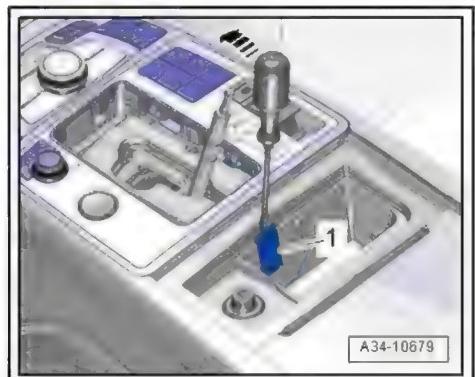
Procedure



Note

The selector lever handle is removed in the illustration. The handle does not have to be removed in order to manually release the selector mechanism from position "P".

- If fitted, remove front ashtray insert.
- Use screwdriver to open cover cap -1- in ashtray housing/storage tray -arrow-.
- Carefully insert tool (e.g. screwdriver from tool kit) through centre opening in ashtray housing and into cylinder -arrow- on selector lever lock solenoid - N110- and at the same time press and hold interlock button and move selector lever out of position "P".



Note

- ◆ This releases the selector lever lock in position "P" by way of the locking lever -1-.
- ◆ The cylinder -arrow- on selector lever lock solenoid - N110- may be partially concealed by noise insulation or wiring (move clear to one side).

1.5 Removing and installing selector lever handle

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-



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- ◆ Thin cable tie or assembly aid for interlock button on handle.
A new selector lever handle is supplied with the assembly aid pre-fitted.

Removing

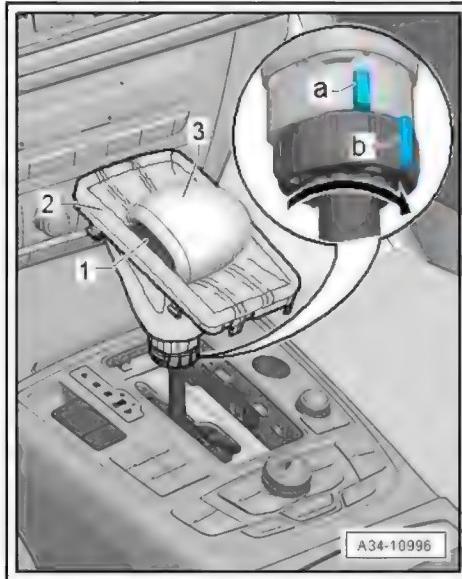
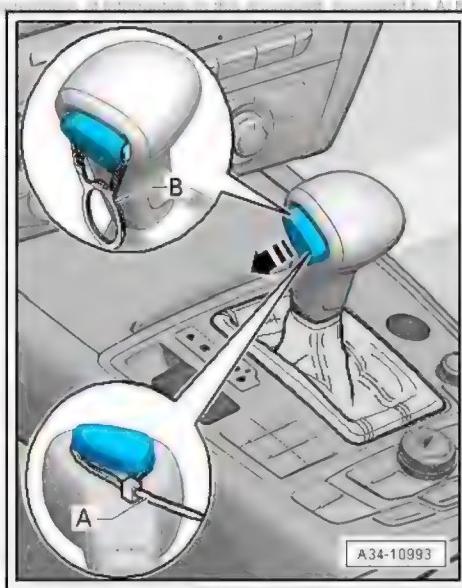
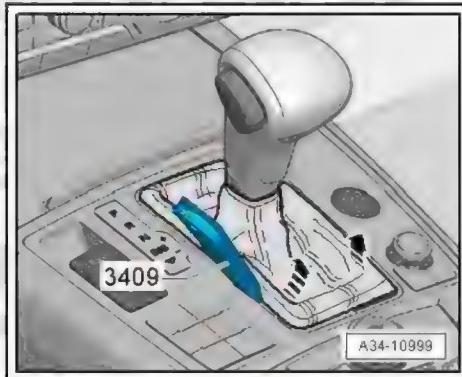
- Pull up parking brake button to apply electromechanical parking brake.
- Shift selector lever into position "N".



The selector lever handle is removed together with the selector lever boot.

- Carefully pry out selector lever boot at the sides in direction of -arrows- using removal wedge - 3409- .
- Pull out interlock button on selector lever handle -arrow- and secure in this position using cable tie -A- or assembly aid -B- as shown in illustration.

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- Turn selector lever boot -2- inside out over selector lever handle -3-.
- Turn locking ring as far as stop in direction of -arrow- so that markings -a- and -b- are no longer in line.
- Pull off selector lever handle together with selector lever boot, taking care not to touch interlock button -1-.

Installing

- When installing the selector lever handle, the interlock button must be pulled out to the stop and secured with either a cable tie -A- or with the assembly aid -B- supplied together with the new handle.

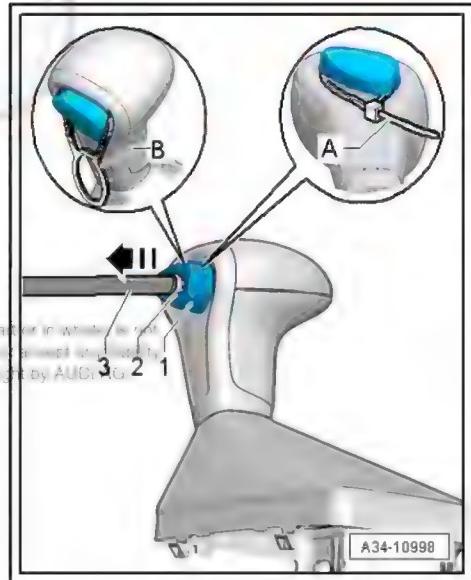
If the interlock button was not properly secured when the handle was removed, and has dropped inside the handle, it must be pulled out and secured as described below before it can be installed.

- Affix adhesive pad or double-sided adhesive tape -2- to interlock button -1- on selector lever handle.

Note

- Alternatively, a small suction cup can also be used (approx. 15 mm dia., commercially available).
- The adhesive pad or double-sided adhesive tape must be completely removed after installing the handle.

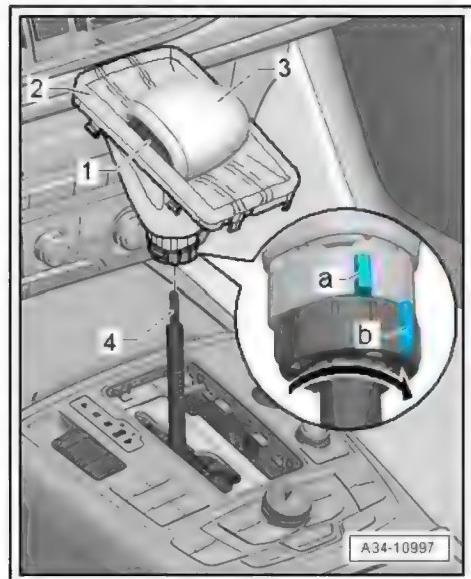
- Press a suitable tool -3- with clean, flat surface onto adhesive surface as shown in illustration and pull out interlock button by this means -arrow-.
- Secure interlock button in pulled-out position using cable tie -A- or assembly aid -B-, as shown in illustration.
- Remove adhesive pad or double-sided adhesive tape -2- and clean interlock button -1-.
- Shift selector lever into position "N".

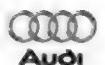


Note

The selector lever can be moved by pulling the release rod -4-.

- Turn selector lever boot -2- inside out over selector lever handle -3-.
- Turn locking ring as far as stop in direction of -arrow- so that markings -a- and -b- are no longer in line.
- With interlock button facing driver's side, push selector lever handle fully onto selector lever so that catch engages.





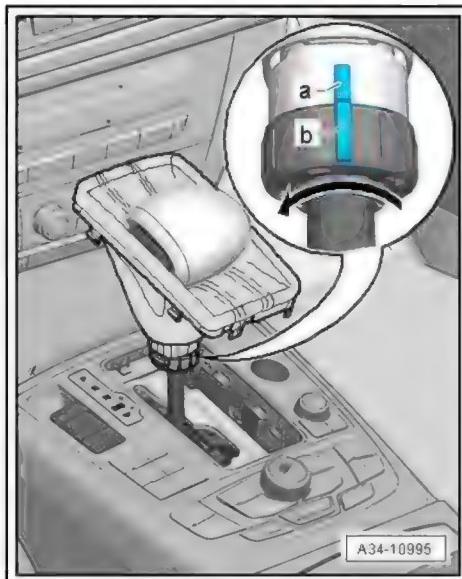
- Turn locking ring in direction of -arrow- until it engages; markings -a- and -b- should be in line.



Caution

Risk of damage to selector lever handle

The locking ring can only be turned when the handle has been pushed on all the way.



- Remove the cable tie or assembly aid, allowing the interlock button mechanism to engage in the vertical groove on the selector lever. If necessary, press the interlock button into the selector lever handle.
- Move selector lever to positions "R" and "S" to check button mechanism.
- If the selector lever cannot be moved into the above positions, the handle must be removed again ⇒ [page 19](#).
- Pull selector lever boot down and clip onto multimedia system operating unit - E380- .

1.6 Removing and installing selector mechanism

Special tools and workshop equipment required

- ◆ Removal lever - 80 - 200-

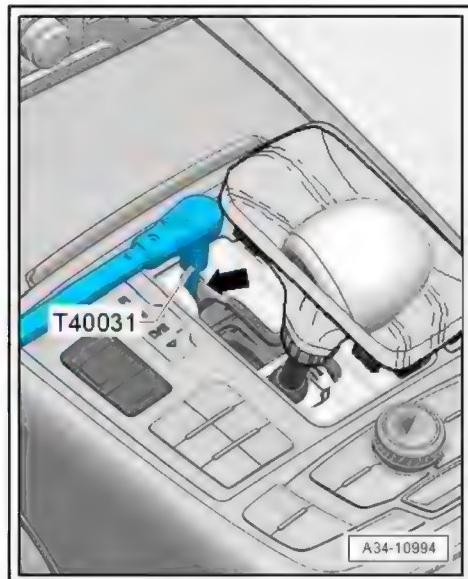


- ◆ Socket - T40031-



Removing

- Remove selector lever handle [⇒ page 19](#).
- Remove front ashtray or storage compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .
- Shift selector lever to position "D".
- Insert socket and key - T40031- through access hole -arrow- in selector mechanism and slacken bolt on selector lever cable approx. one turn.

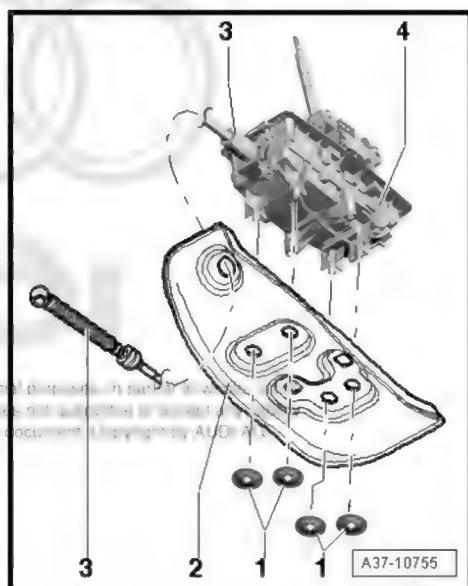
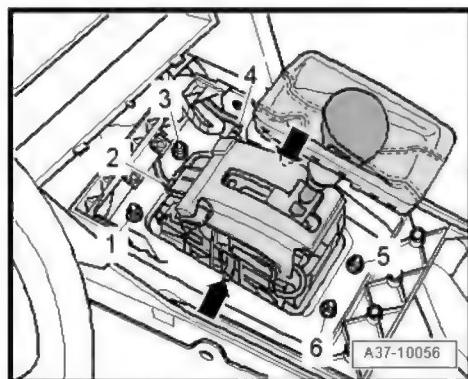


- Unplug electrical connectors -2- and -4-.

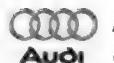


Note

- ◆ Insulating mat is not shown in illustration.
- ◆ The assistance of a second mechanic is required to detach the selector mechanism from below.
- ◆ Disregard -arrows-.
- Remove insulating mat above selector mechanism.
- Remove bolts -1, 3, 5, 6-.
- If fitted, remove retaining washers -1-.
- Detach noise insulation -2- from shift unit -4- and slide noise insulation forwards towards selector lever cable -3-.



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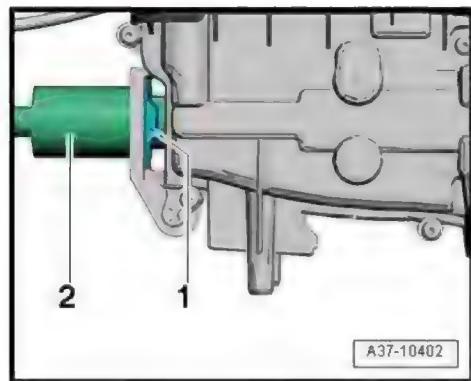


- Pull out retaining clip -1- for selector lever cable from the side.
- Pull selector lever cable -2- out of selector mechanism.



Note

Do not bend or kink the selector lever cable.



- Take off shift unit.

Installing

Installation is carried out in reverse sequence; note the following:

- Insert shift unit and secure from above.
- Install selector lever cable [⇒ page 26](#).
- Adjust selector lever cable [⇒ page 32](#).
- Check selector mechanism [⇒ page 24](#).
- Install front ashtray or storage compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .
- Install selector lever handle [⇒ page 19](#).

Tightening torques

- ◆ [⇒ "1.2 Exploded view - selector mechanism", page 16](#)
- ◆ [⇒ "1.3 Exploded view - selector lever cable", page 18](#)

1.7 Checking selector mechanism



WARNING

Accidents and injury can be caused if a gear is inadvertently engaged while the engine is running.

- ◆ Before performing any work with the engine running, set the gearbox to position "P" and pull up the parking brake button to apply the electromechanical parking brake.
- ◆ Observe safety precautions when the vehicle is moving [⇒ page 7](#).
- ◆ You must work through all the tests listed. If specified results are not obtained, adjust selector lever cable ([⇒ page 32](#)) and perform "Guided Fault Finding" using vehicle diagnostic tester .

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Overview:

With respect to the contents of this document, the guarantee is provided by Audi AG.

- ◆ 1. Checking operation of selector mechanism [⇒ page 24](#)
- ◆ 2. Checking interlock button on selector lever handle [⇒ page 26](#)

1. Checking operation of selector mechanism

- It should not be possible to operate the starter while the selector lever is in positions "R", "D/S" or in the "tiptronic gate".
- When travelling at speeds above 5 km/h and shifting into selector lever position "N", the solenoid for the selector lever lock must not engage and block the selector lever. The selector lever can be shifted into a driving gear.

- When travelling at speeds below 2 km/h (almost stationary), the solenoid for the selector lever lock should only engage about 1 second after you shift into selector lever position "N". The selector lever cannot be shifted out of "N" position until the brake pedal is pressed.

Selector lever in position "P":

- Pull up parking brake button to apply electromechanical parking brake.
- Switch off ignition.
- The selector lever is locked and cannot be shifted out of "P" position, even when the interlock button on the handle is pressed in.
- Switch on ignition.



Note

To obtain the "ignition on" position, briefly press the entry and start authorisation button - E408- .

- Do not depress brake pedal.
- The selector lever is locked and cannot be shifted out of "P" position, even when the interlock button on the handle is pressed in. Selector lever lock solenoid - N110- blocks selector lever.
- Press and hold brake pedal.
- Selector lever lock solenoid - N110- releases selector lever. It is possible to shift into a driving gear. With interlock button on selector lever handle pressed, shift selector lever slowly from "P" position through "R, N, and D/S" and check whether the selector lever position display - Y6- in the instrument cluster shows the correct selector lever position in each case.
- Pull selector lever from "D/S" towards the rear and release selector lever.
- The selector lever will return automatically to the position "D/S". The selector lever position display - Y6- in the instrument cluster should change from "D" to "S1" and then back to "D" when the selector lever is pulled back once again.

Selector lever in position "N" and ignition switched on:

- Do not depress brake pedal.
- After a short delay: Selector lever is locked and cannot be shifted out of "N" position even when pressing the interlock button on the selector lever handle. Selector lever lock solenoid - N110- blocks selector lever.
- Depress brake pedal.
- Selector lever lock solenoid - N110- releases selector lever. Shifting into position "D/S" is possible.

Selector lever in position "D/S", ignition switched on:

- Shift selector lever into "tiptronic gate".
- The illuminated "D/S" symbol in the selector lever position display - Y26- should go out and the "+" and "-" symbols should light up.
- The selector lever position display - Y6- in the instrument cluster should change from "D" to "M1" when the selector lever is moved into the "tiptronic gate".



- Do not move selector lever to position "P"; select e.g. position "N".
- Switch off ignition.
- A warning message should be displayed in the instrument cluster.
- The vehicle cannot be locked.
- Move selector lever to position "P".
- Switch off ignition.
- The vehicle can now be locked.

If results do not match specifications:

- Perform **Guided Fault Finding** routine using vehicle diagnostic tester .
Caution! Please note that the information contained in this document is subject to change without notice with respect to the correctness of information in this document. For the latest version, refer to the Audi A6/A7/A8.
- Adjust selector lever cable [⇒ page 32](#) .
- Check interlock button on selector lever handle [⇒ page 26](#) .

2. Checking interlock button on selector lever handle

Check that interlock button moves freely:

- Interlock button should move easily when pressed without force.
- Interlock button should spring back fully on its own when released.

If results do not match specifications:

- Check whether selector lever handle is correctly installed [⇒ page 19](#) .
- Check whether selector lever is bent.

Function test:

- Ignition switched on

Press the interlock button on the selector lever handle to move the handle into the positions listed below; it should not be possible to move the selector lever into these positions unless the interlock button is pressed.

- ◆ "P" to "R" (also depress brake pedal)
- ◆ "N" to "R" (brake pedal also has to be depressed after a short delay when vehicle is stationary)
- ◆ "R" to "P"

If results do not match specifications:

- Check whether selector lever handle is correctly installed [⇒ page 19](#) .
- Check electrical connectors on selector mechanism.
- Perform **Guided Fault Finding** using vehicle diagnostic tester and check selector lever lock solenoid - N110- .
- Adjust selector lever cable [⇒ page 32](#) .

1.8 Removing and installing selector lever cable

Special tools and workshop equipment required

◆ Removal lever - 80 - 200-

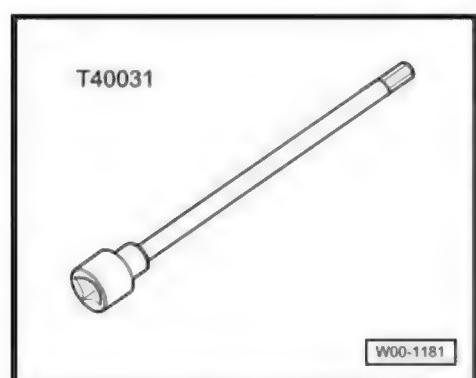


◆ Removal wedge - 3409-



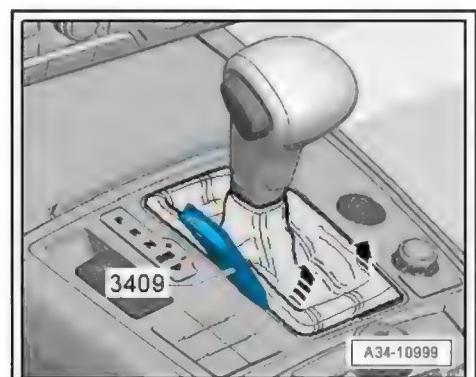
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◆ Socket - T40031-



Removing

- Pull up parking brake button to apply electromechanical parking brake.
- Shift selector lever to position "D".
- Carefully pry out selector lever boot at the side in direction of -arrows- using removal wedge - 3409- and turn selector lever boot inside out over selector lever handle.

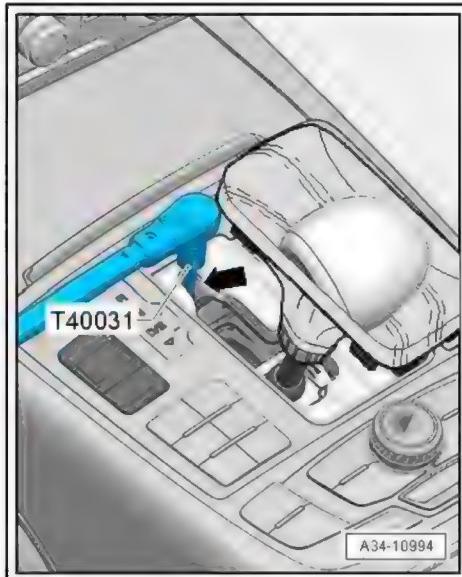




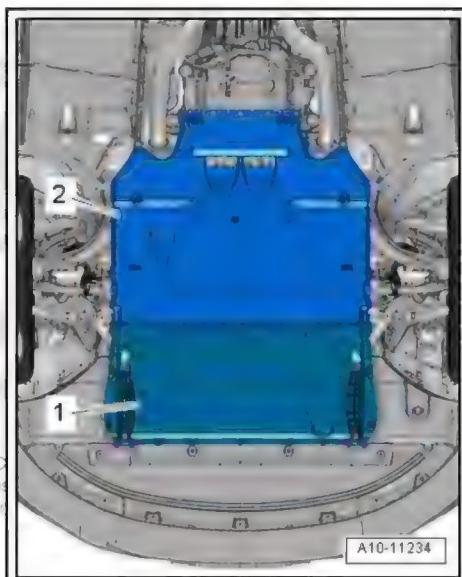
- Insert socket and key - T40031- through access hole -arrow- in selector mechanism and slacken bolt on selector lever cable approx. one turn.

Note

- ◆ Only loosen clamping bolt – do not remove.
- ◆ Clamping bolt can only be accessed with selector lever in position "D".
- ◆ With clamping bolt loosened, selector lever must remain in position "D".

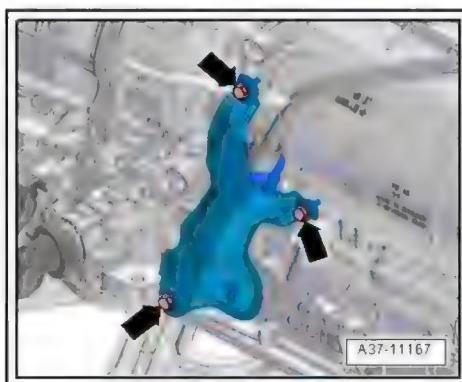


- Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .



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- If fitted, remove bolts -arrows- and detach heat shield.

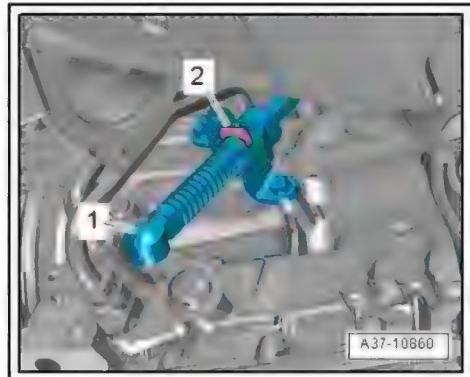


- Use removal lever - 80 - 200- to press ball socket -1- on selector lever cable off gearbox selector lever.
- Pry off retaining clip -2- and detach selector lever cable from gearbox.

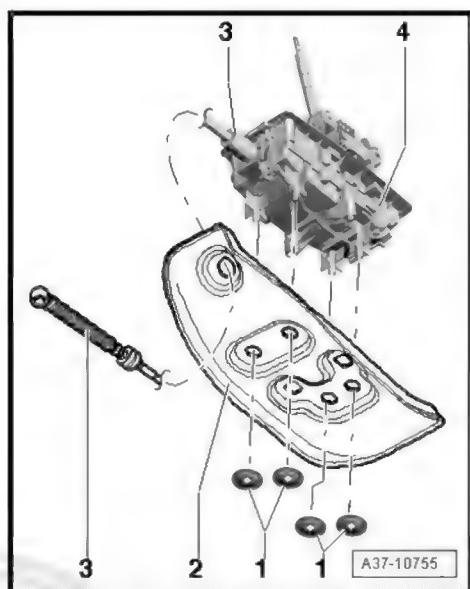


Note

Do not bend or kink the selector lever cable.



- Remove four retaining washers -1-.
- Pull off noise insulation -2- and slide forwards.



- Pull out retaining clip -1- for selector lever cable from the side.
- Pull selector lever cable -2- out of selector mechanism.

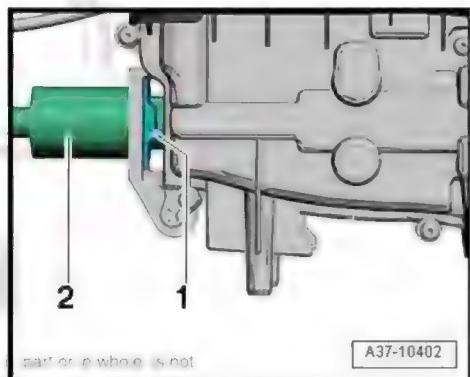
Installing

Installation is carried out in reverse sequence; note the following:



Note

- ◆ *Renew retaining washers.*
- ◆ *Renew O-ring on selector lever cable.*
- ◆ *Before installing, lightly grease cable eye and ball socket on selector lever cable with polycarbamide grease - G 052 142 A2-.*

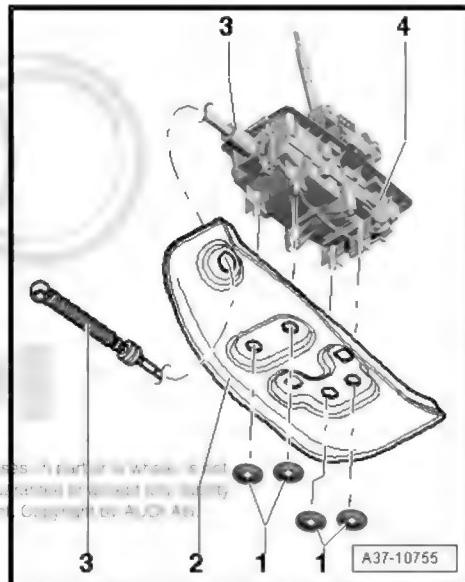




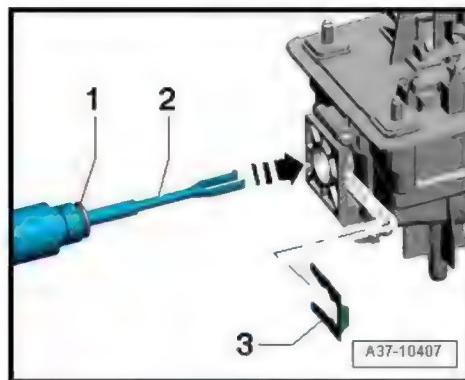
- Slide selector lever cable -3- through hole on noise insulation -2-.



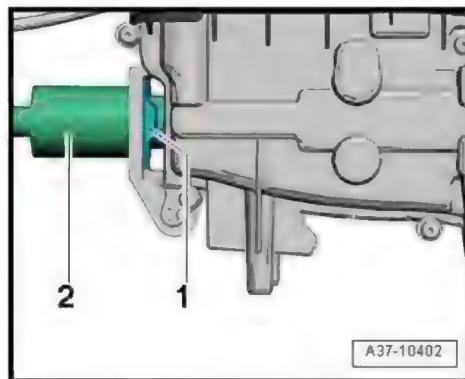
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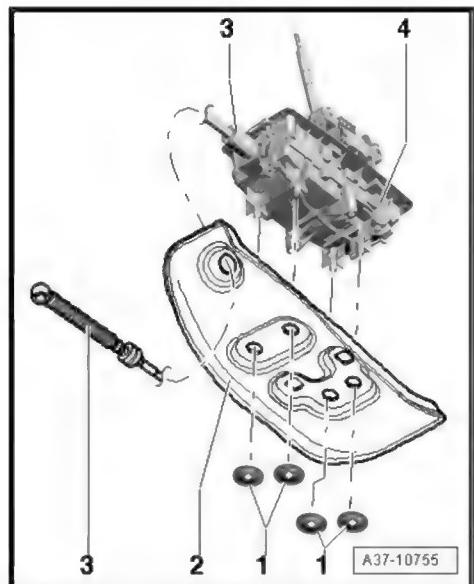
- Fit O-ring -1- on selector lever cable.
- Insert selector lever cable -2- into shift unit -arrow-.
- Secure selector lever cable with retaining clip -3-.



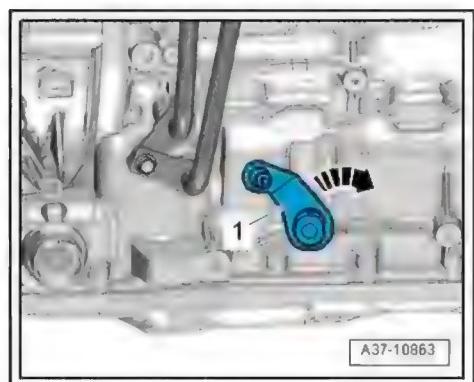
- Installation position: angled end of retaining clip -1- must point towards selector mechanism.



- Secure noise insulation -2- with four new retaining washers -1-.



- Press gearbox selector lever -1- on gearbox towards the rear as far as it will go -arrow- until parking lock engages.
- When the parking lock has engaged it should no longer be possible to rotate both front wheels in one direction at the same time.
- Then push gearbox selector lever forward 3 notches so that gearbox is in position "D".
- Check that selector lever is also in position "D" inside the vehicle.



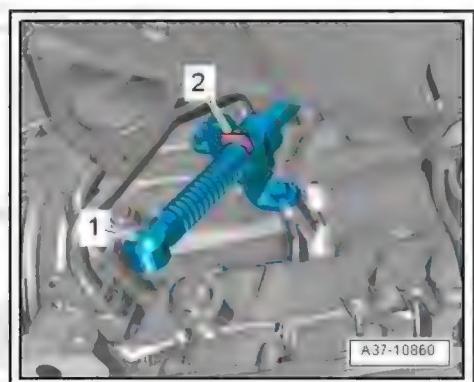
- Carefully press ball socket of selector lever cable -1- onto gearbox selector lever in this position.
- Secure selector lever cable with retaining clip -2-.

Note

- ◆ *Do not bend or kink the selector lever cable.*
- ◆ *Take care not to bend the gearbox selector lever when pressing on the cable; support the lever if necessary, as otherwise the selector mechanism can no longer be adjusted accurately.*
- Check selector lever cable and adjust if necessary
[⇒ page 32](#).
- Check selector mechanism [⇒ page 24](#).

Tightening torques

- ◆ [⇒ "1.3 Exploded view - selector lever cable", page 18](#)
- ◆ [⇒ Fig. "Heat shield - tightening torque" , page 18](#)
- ◆ [⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation](#)



1.9 Checking and adjusting selector lever cable

⇒ “1.9.1 Checking and adjusting selector lever cable”,
page 32

⇒ “1.9.2 Adjusting selector lever cable to basic setting”,
page 33

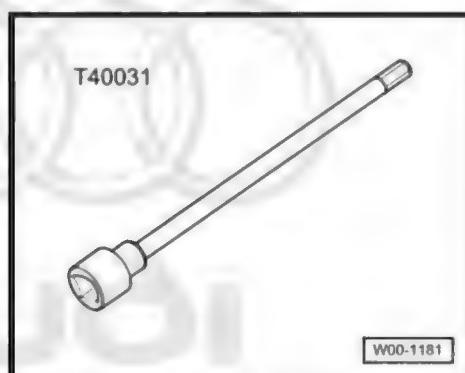
1.9.1 Checking and adjusting selector lever cable

Special tools and workshop equipment required

- ◆ Removal wedge - 3409-

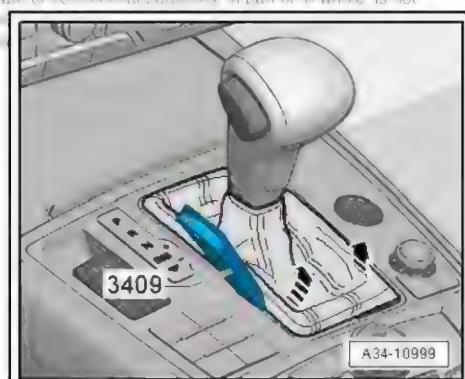


- ◆ Socket - T40031-



Procedure

- Pull up parking brake button to apply electromechanical parking brake.
- Shift selector lever to position "D".
- Carefully pry out selector lever boot at the side in direction of -arrows- using removal wedge - 3409- and turn selector lever boot inside out over selector lever handle.



- Insert socket and key - T40031- through access hole -arrow- in selector mechanism and slacken bolt on selector lever cable approx. one turn.



Note

- ◆ Only loosen clamping bolt – do not remove.
- ◆ Clamping bolt can only be accessed with selector lever in position "D".
- ◆ With clamping bolt loosened, selector lever must remain in position "D".

- Carefully move selector lever slightly forwards and backwards, without shifting lever into a different selector lever position. The selector lever cable is thereby slackened.
- Shift selector lever into "tiptronic gate".
- Use socket and key - T40031- to tighten clamping bolt in this position, taking care not to touch selector lever.
- Check selector mechanism [⇒ page 24](#).

If selector mechanism is not functioning correctly after adjusting selector lever cable, proceed as follows:

- Adjust selector lever cable to basic setting [⇒ page 33](#).

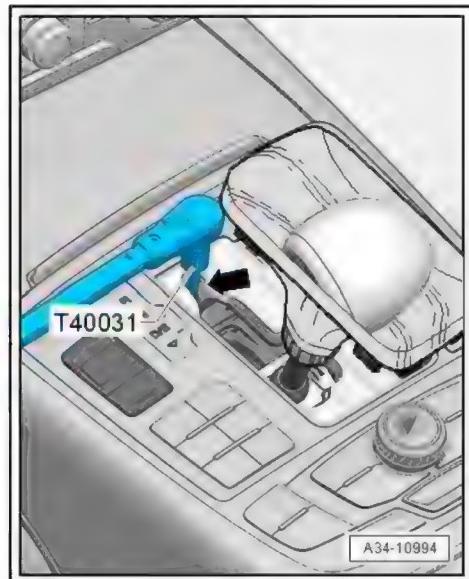
Tightening torques

- ◆ [⇒ "1.3 Exploded view - selector lever cable", page 18](#)

1.9.2 Adjusting selector lever cable to basic setting

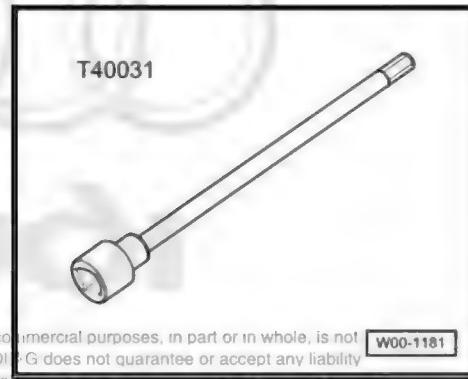
Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester
- ◆ Removal lever - 80 - 200-





- ◆ Socket - T40031-



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Procedure

- Guided Fault Finding using the vehicle diagnostic tester has been completed; all faults repaired.
- Using the diagnostic tester in Guided Fault Finding mode, go to "Function/Component Selection" and select the following menu items:
 - ◆ Drive system
 - ◆ 0BW gearbox
 - ◆ 01 – Self-diagnosis compatible systems
 - ◆ 02 – Gearbox electronics
 - ◆ 02 – Gearbox electronics, Functions
 - ◆ 02 – Measured values
- Select the value for Gear from the menu.
- Compare the following readings:
 - ◆ Value for "Gear" on vehicle diagnostic tester
 - ◆ Selector lever position
 - ◆ Gear indicated on selector lever position display - Y26- (on selector mechanism)
 - ◆ Selector lever position display - Y6- in instrument cluster

Requirement:

- The displays should match

If the displays do not match:

- Adjust selector lever cable [⇒ page 32](#).

If the displays cannot be matched by adjusting the selector lever cable:

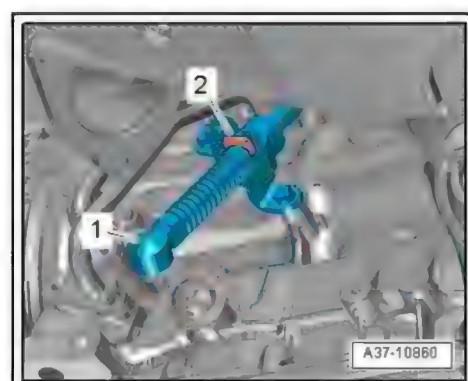
Adjusting selector lever cable to basic setting:

- Use removal lever - 80 - 200- to press ball socket -1- on selector lever cable off gearbox selector lever.

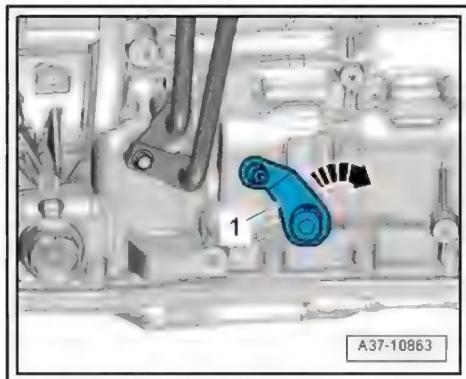


Note

Disregard -item 1-.



- Press gearbox selector lever -1- on gearbox towards the rear as far as it will go -arrow- until parking lock engages.
- When the parking lock has engaged it should no longer be possible to rotate both front wheels in one direction at the same time.
- Then push gearbox selector lever forward 3 notches so that gearbox is in position "D".
- Check that selector lever is also in position "D" inside the vehicle.



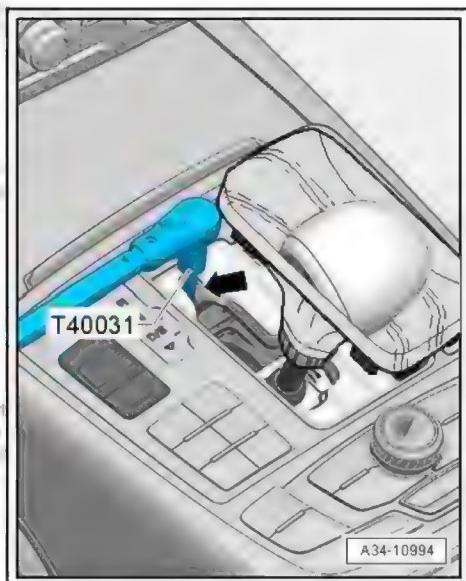
- Insert socket and key - T40031- through access hole -arrow- in selector mechanism and slacken bolt on selector lever cable approx. one turn.



Note

- ◆ Only loosen clamping bolt – do not remove.
- ◆ Clamping bolt can only be accessed with selector lever in position "D".
- ◆ With clamping bolt loosened, selector lever must remain in position "D".

- Detach socket and key - T40031- from torque wrench and leave it inserted in access hole -arrow- in selector mechanism.



- Carefully press ball socket of selector lever cable -1- onto gearbox selector lever in this position.



Note

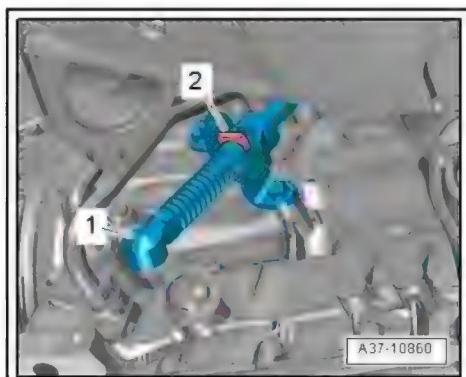
- ◆ Take care not to bend gearbox selector lever when pressing on cable; support lever if necessary, as otherwise selector mechanism can no longer be adjusted accurately.
- ◆ Disregard -item 2-.

- With vehicle diagnostic tester in Guided Fault Finding mode, select 02 - Gearbox electronics and the function 02 - Measured values.

- Select the value for Gear from the menu.
- Compare the following readings:
- ◆ Value for Gear on vehicle diagnostic tester
- ◆ Selector lever position
- ◆ Gear indicated on selector lever position display - Y26- (on selector mechanism)
- ◆ Selector lever position display - Y6- in instrument cluster

Requirement:

- The displays should match

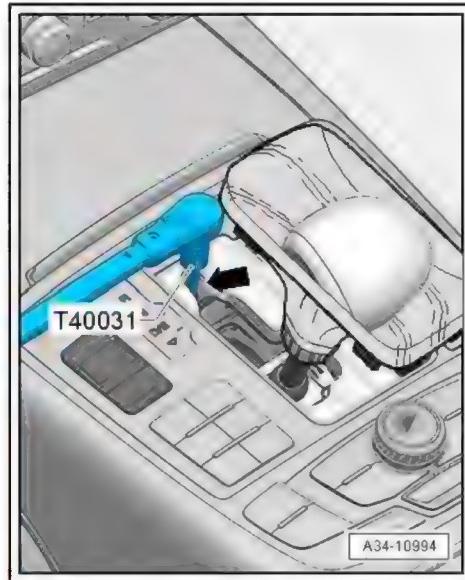




- Carefully move selector lever slightly forwards and backwards, without shifting lever into a different selector lever position. The selector lever cable is thereby slackened.
- Use socket and key - T40031- to tighten clamping bolt in this position, taking care not to touch selector lever.
- Check selector mechanism [⇒ page 24](#).

Tightening torques

- ◆ [⇒ "1.3 Exploded view - selector lever cable", page 18](#)



1.10 Removing and installing selector lever lock solenoid - N110-

Removing

- Move selector lever to position "P".
- Remove front ashtray or storage compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .
- Unscrew nuts -1, 3, 5, 6- a few turns, but do not remove completely.



Note

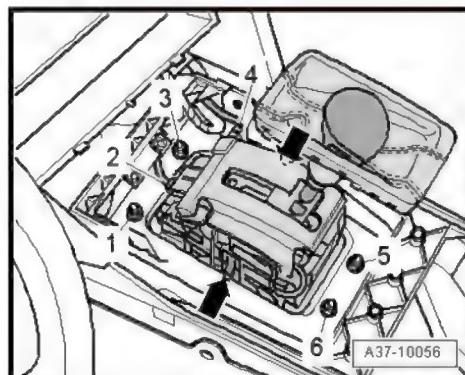
- ◆ This will lower the shift unit slightly and facilitate removal.
- ◆ Items marked -2, 4- and -arrows- can be disregarded.



Caution

The selector mechanism can be damaged by broken retaining clips, retaining tabs or other objects.

- ◆ Make sure that no parts or objects drop into the selector mechanism. If this happens, the selector mechanism will have to be renewed!



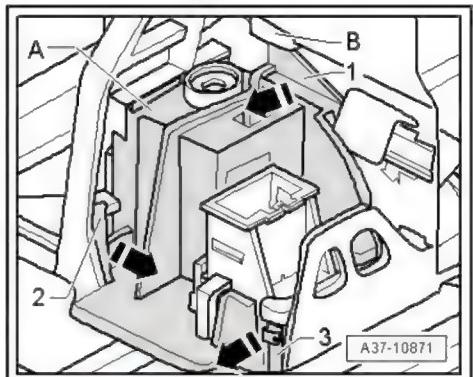
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- Release retaining tabs -2- and -3- in direction of -arrow-, lift front of cover -A- slightly and hold in that position.



This prevents the retaining tabs from engaging again.

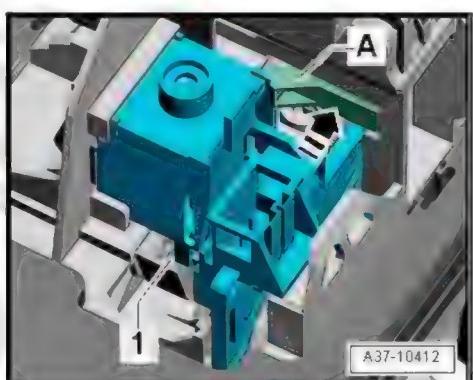
- Using a screwdriver, release top retaining tab -1- of cover from retainer -B- in direction of -arrow- and lift out cover -A-.



- Unplug electrical connector on selector lever lock solenoid - N110- .
- Press retaining hook -A- in direction of -arrow- and hold in this position.



The shift unit must be renewed if the retaining hook -A- breaks off.

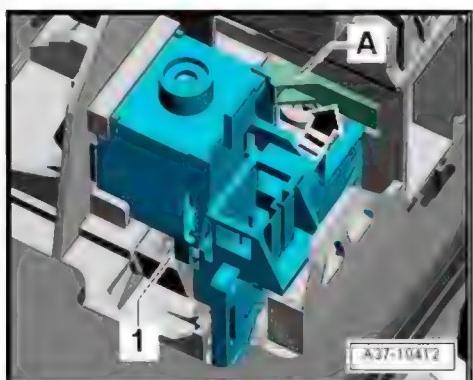
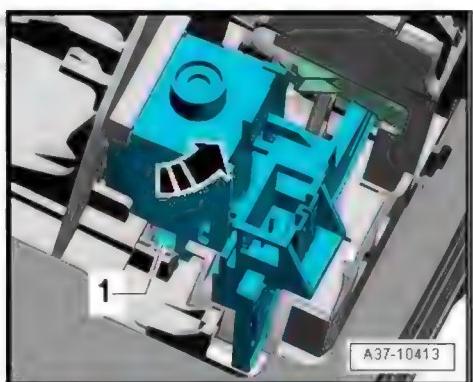


- Tilt bottom part of selector lever lock solenoid - N110- out in direction of -arrow- so that ball rod -1- disengages from operating lever on selector mechanism.
- Detach selector lever lock solenoid - N110- .

Installing

Installation is carried out in reverse sequence; note the following:

- Turn ball rod -1- into correct position for installation.
- Guide selector lever lock solenoid - N110- into selector mechanism at an angle from above and tilt bottom part in opposite direction of -arrow-.
- Ball rod -1- must engage fully in operating lever on selector mechanism; press home with a small screwdriver if necessary.
- Secure selector lever lock solenoid - N110- to retaining hook -A-.

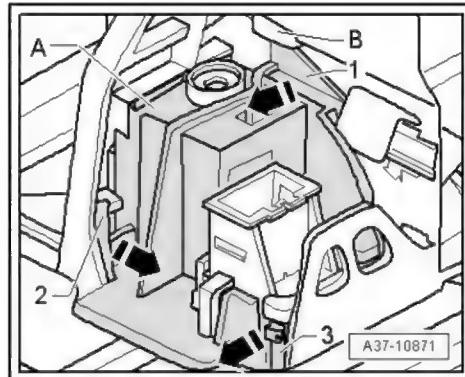




- Place cover -A- over selector lever lock solenoid - N110- and carefully engage -1 ... 3-.
- Attach electrical connectors.
- Check function of selector mechanism before continuing assembly [⇒ page 24](#).
- Install front ashtray or storage compartment ⇒ General body repairs, interior; Rep. gr. 68 ; Centre console; Exploded view - centre console .

Tightening torques

- ◆ [⇒ "1.2 Exploded view - selector mechanism", page 16](#)



1.11 Removing and installing selector lever sensors control unit - J587-

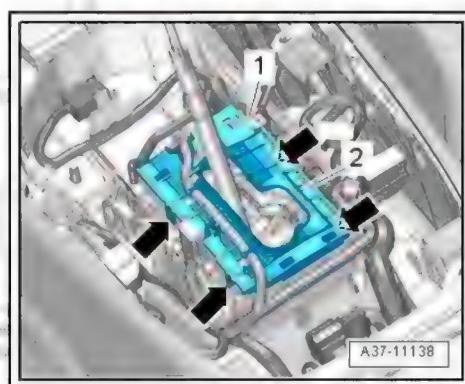
Removing

- Remove selector lever handle [⇒ page 19](#) .
- Remove multimedia system operating unit - E380- ⇒ Communication; Rep. gr. 91 ; Infotainment system; Removing and installing multimedia system operating unit - E380- .
- Unplug electrical connector -1-.
- Release 4 retaining tabs -arrows- and lift out selector lever sensors control unit - J587- -item 2-.

Installing

Installation is carried out in reverse sequence; note the following:

- Make sure selector lever sensors control unit - J587- clicks in place with 4 retaining tabs.
- Install multimedia system operating unit - E380- ⇒ Communication; Rep. gr. 91 ; Infotainment system; Removing and installing multimedia system operating unit - E380- .
- Install selector lever handle [⇒ page 19](#) .

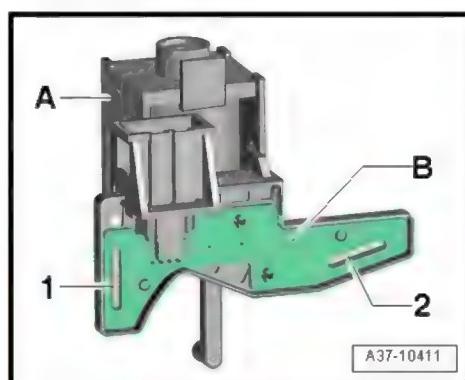


1.12 Removing and installing gear selector position P switch - F305-

- ◆ Fitting location: Gear selector position P switch - F305- consists of two microswitches -1- and - 2- and is installed on printed circuit board -B- in selector lever lock solenoid - N110- -A-.

Gear selector position P switch - F305- can only be renewed together with selector lever lock solenoid - N110- .

- ⇒ ["1.10 Removing and installing selector lever lock solenoid N110", page 36](#)



1.13 Renewing selector shaft oil seal

Special tools and workshop equipment required

◆ Removal lever - 80 - 200-



Procedure

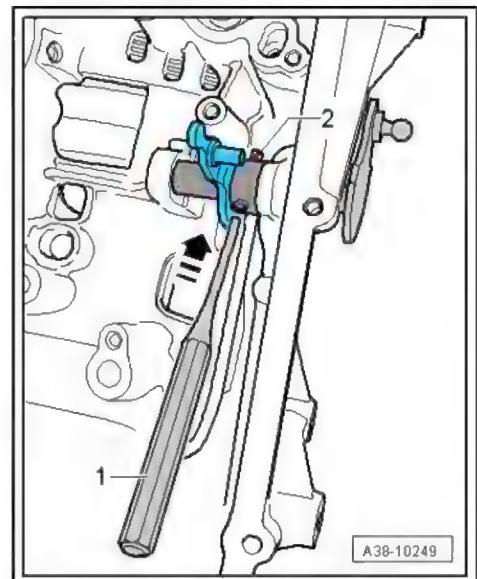
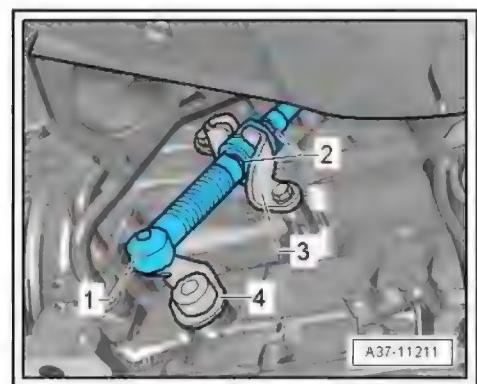
- Remove ATF oil pan [⇒ page 87](#).
- Remove ATF filter [⇒ page 90](#).
- Remove mechatronic unit ⇒ Servicing 8-speed automatic gearbox; Rep. gr. 38 ; Mechatronic unit; Removing and installing mechatronic unit.
- Use removal lever - 80 - 200- to press ball socket -1- on selector lever cable off gearbox selector lever.



Note

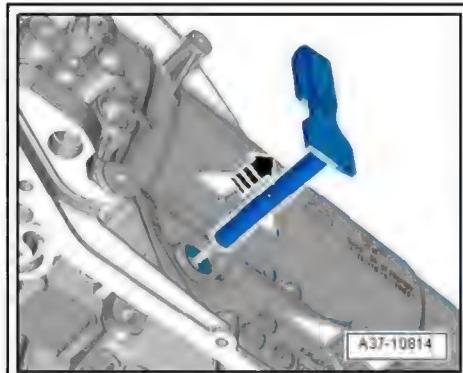
Do not bend or kink the selector lever cable.

- Knock roll pin -2- out of shaft of gearbox selector lever using a suitable punch -1-.



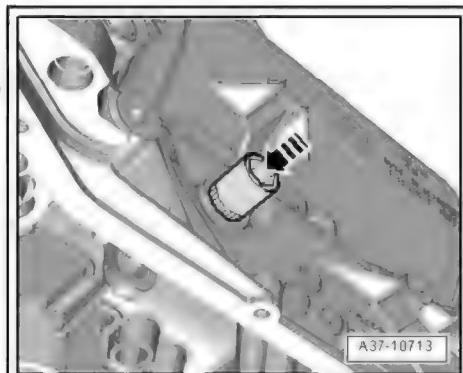


- Pull off gearbox selector lever with shaft -arrow-.
- Pry out oil seal with small screwdriver.
- Lubricate outer circumference and space between sealing lips of new oil seal with ATF.
- Installation position: open side of oil seal points towards gearbox



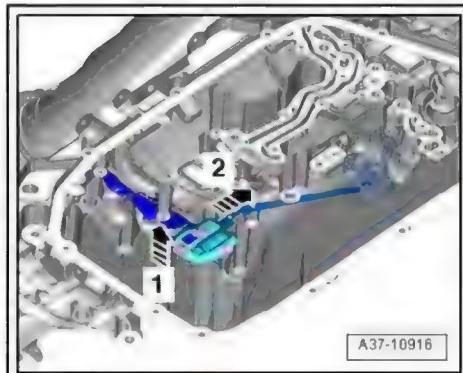
- Fit oil seal on gearbox housing and press in as far as stop -arrow- using a suitable socket.

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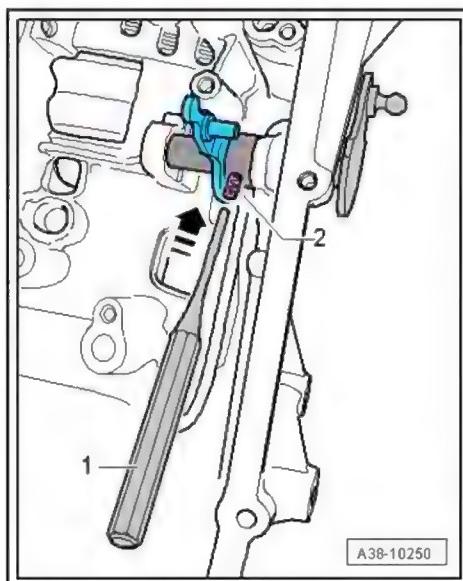


 Note

If the operating rod for the locking pawl has slipped too far towards the rear, it can only be pulled forward again -arrow 2- if the locking pawl is pressed at the same time -arrow 1-.



- Drive roll pin -2- into shaft of gearbox selector lever until flush using a suitable punch -1- .
- Install mechatronic unit ⇒ Servicing 8-speed automatic gearbox; Rep. gr. 38 ; Mechatronic unit; Removing and installing mechatronic unit .
- Install ATF filter [⇒ page 90](#) .
- Install ATF oil pan [⇒ page 87](#) .
- Install front silencer(s) ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .
- Fill up with ATF [⇒ page 82](#) .



2 Removing and installing gearbox

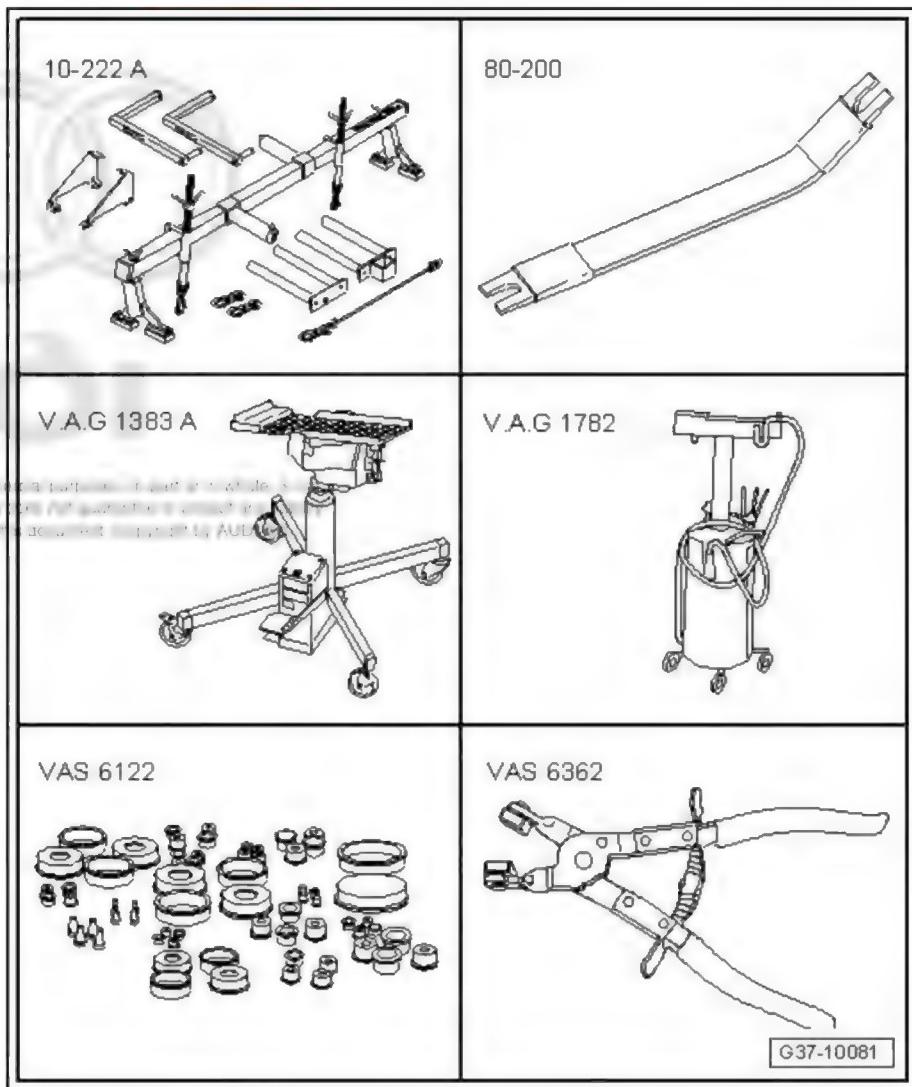
⇒ "2.1 Removing gearbox", page 41

⇒ "2.2 Installing gearbox", page 54

⇒ "2.3 Tightening torques for gearbox", page 62

2.1 Removing gearbox

Special tools and workshop equipment required



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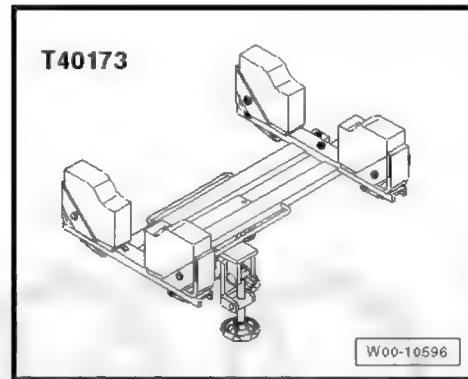
- ◆ Support bracket - 10 - 222 A-
- ◆ Removal lever - 80 - 200-
- ◆ Engine and gearbox jack - V.A.G 1383 A-
- ◆ Used oil collection and extraction unit - VAS 6622A- or -V.A.G 1782-
- ◆ Engine bung set - VAS 6122-
- ◆ Hose clip pliers - VAS 6362-



Audi A6 2011 >, Audi A7 Sportback 2011 >

8-speed automatic gearbox 0BW hybrid, front-wheel drive - Edition 08.2017

◆ Gearbox support - T40173-



Produktionsunterlagen für die Montage des Getriebes und der Getriebestütze
für die Audi A6 (4G), A7 (4G) und Q7 (4L) mit dem 8-Gang-Automatikgetriebe 0BW.
Werkzeug und Montagehilfsmittel sind im Werkstattbedarf unter Teilenummer 08.2017 Audi A6

Preparing gearbox support - T40173- :

- Mounting block attached at -position 1- must be rotated so that the shorter side faces upwards.
- Mounting block attached at -position 2- must be rotated so that the longer side faces upwards.
- Mounting blocks attached at -position 3- must be rotated so that the shorter side faces upwards.

Removing gearbox

Observe safety precautions [⇒ page 2](#).

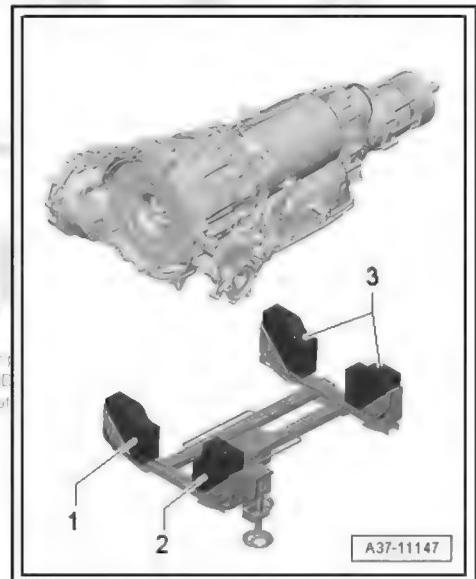
- Electromechanical parking brake is released.
- Shift selector lever to position "D/S".
- Bring front wheels into straight-ahead position.

De-energising high-voltage system



WARNING

Observe general warning instructions for work on the high-voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



The high-voltage system must be de-energised according to the [Guided Fault Finding](#) routine in the vehicle diagnostic tester, and ONLY by this method.



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

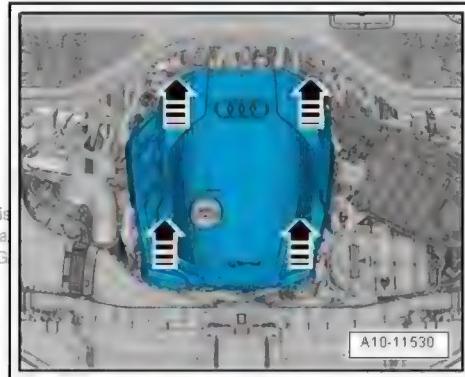
- ◆ The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).
- ◆ It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".
- ◆ The qualified person (Audi high-voltage technician) confirms that the system is de-energised and uses the locking cap - T40262- to ensure that the system cannot be re-energised. As an additional precaution, the ignition key and the maintenance connector for high-voltage system - TW- are then stored in a safe place by the qualified person.
- ◆ The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.



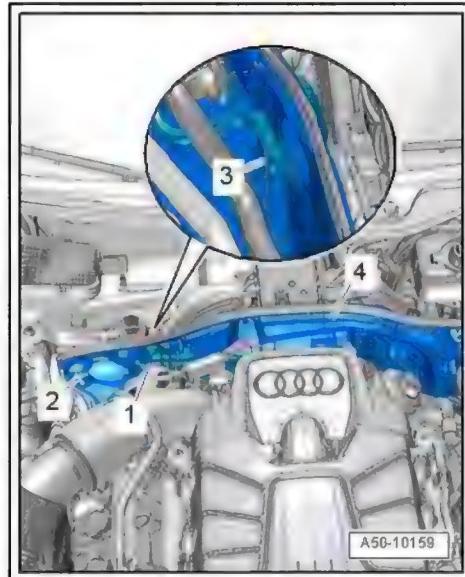
Note

- ◆ *De-energising high-voltage system:*
 - ◆ *Connect vehicle diagnostic tester.*
 - ◆ *Select Guided Fault Finding mode.*
 - ◆ *Using the GoTo button, select the following menu options in succession.*
 - ◆ **Function/Component Selection**
 - ◆ **Body**
 - ◆ **Electrical system**
 - ◆ **Self-diagnosis compatible systems**
 - ◆ **8C – Hybrid battery management -J840**
 - ◆ **8C – Hybrid battery management, functions**
 - ◆ **51 – De-energise high-voltage system (Rep. Gr. 93)**
- Remove engine cover panel ⇒ Rep. gr. 10 ; Engine cover panel; Removing and installing engine cover panel .

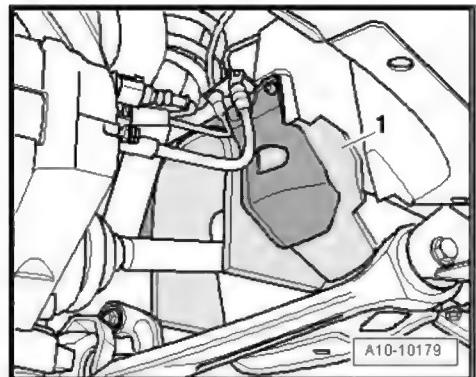
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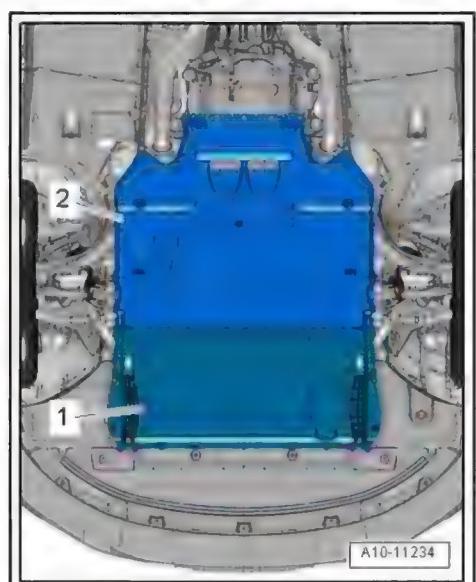
- Remove plenum chamber partition panel -4- ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - plenum chamber partition panel .



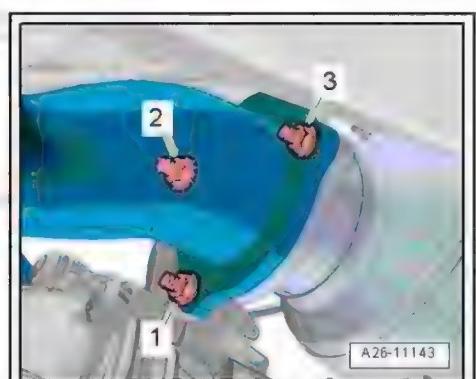
- Remove front wheels ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .
 - Remove cover -1- for drive shaft from wheel housing (both sides) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .



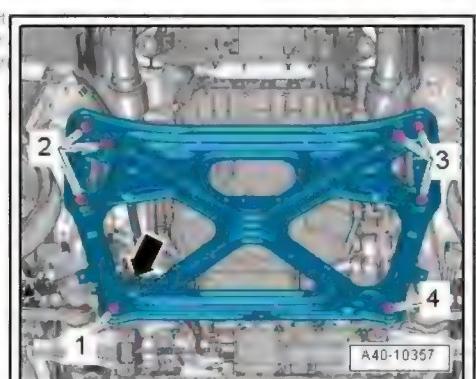
- Remove noise insulation -1- and -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
 - Remove coolant pipe on gearbox (right-side) ⇒ Rep. gr. 19 ; Coolant pipes; Removing and installing coolant pipes .



- Remove front silencer ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .



- Remove subframe cross brace → **Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .**



Caution

Risk of damage to parts of the running gear.

- ◆ *Do not let the vehicle down on the wheels if the gearbox mounting, steering rack or subframe cross brace are not properly installed.*



Note

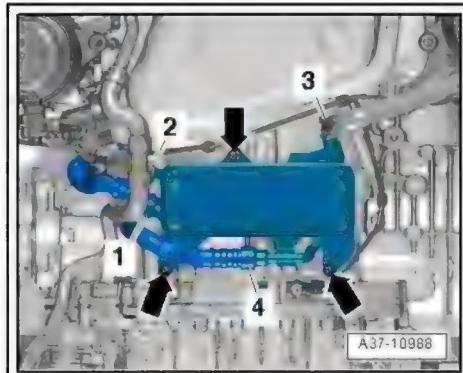
Place a cloth below to catch escaping coolant.

- Remove bolts -arrows- and press ATF cooler slightly to side.

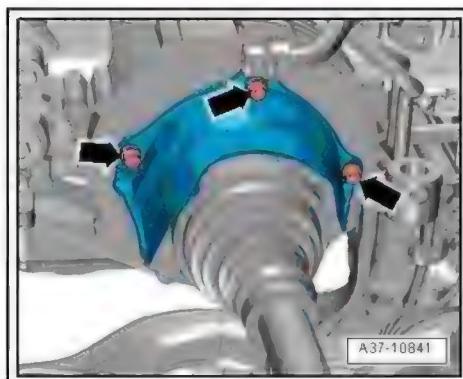


Note

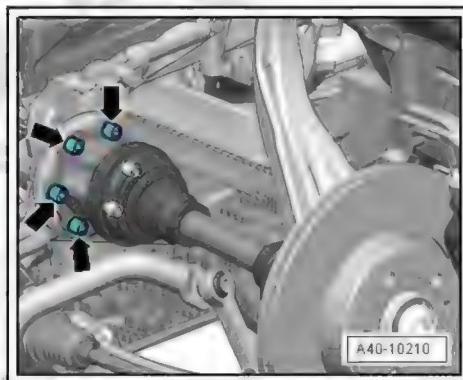
-Items 1 ... 4- can be disregarded.



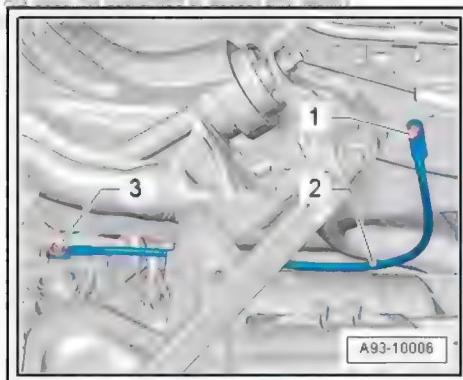
- Remove bolts -arrows- and detach heat shield for drive shaft (right-side).



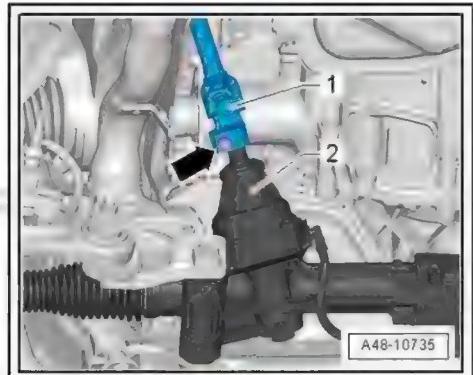
- Unbolt drive shafts (left and right) from flange shafts of gearbox ➤ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .



- Remove bolt -3- and detach potential equalisation line -2- from gearbox.



- Detach intermediate steering shaft from steering rack and telescope splines upwards ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column; Removing and installing intermediate steering shaft .

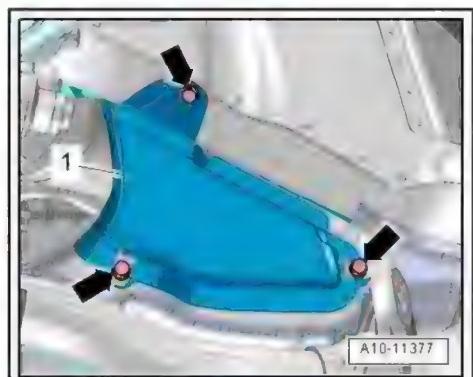


- Unplug electrical connector -1- for vehicle signals (CAN bus and terminal 15) from power steering control unit - J500- (to do this, release retainer and press down release catch).
- Unplug electrical connector -2- for supply voltage (terminal 30) from power steering control unit - J500- (to do this, release retainer -arrow- and press down release catch).

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- Remove bolts (left and right) -arrows- and detach heat shield -1-.

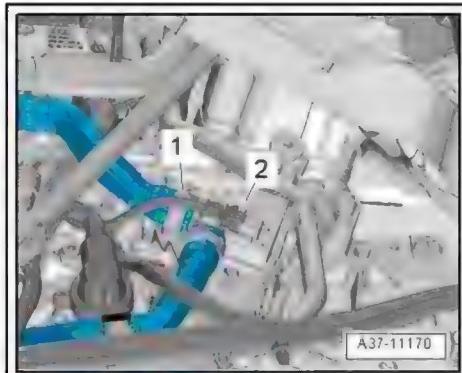


- Fold back heat insulation sleeve.
- Unplug electrical connector -arrow- for auxiliary hydraulic pump 1 for gearbox oil - V475- at right of gearbox.
- Move electrical wiring clear.





- Unplug electrical connector -2-.
- Release hose clip -1- and detach coolant hose.

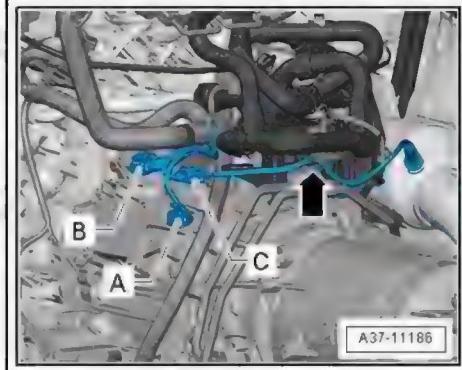
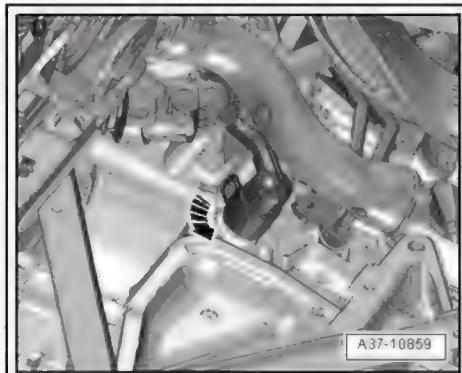


Caution

The gearbox control unit (mechatronic unit) can be irreparably damaged by electrostatic discharge.

- ◆ *Do not touch contact pins in gearbox connector with bare hands.*

- Touch gearbox housing with your hand (without gloves) to discharge any static electricity.
- Turn fastener anti-clockwise -arrow- and unplug electrical connector on gearbox.
- Move electrical wiring harness clear on gearbox.
- Unplug connector -A- for high-voltage wiring harness for drive motor - PX2- and connector -B- on drive motor rotor position sender 1 - G713- at top left of gearbox.
- Unplug connector -C- for Lambda probe after catalytic converter - G130- and detach from cable tie -arrow-.

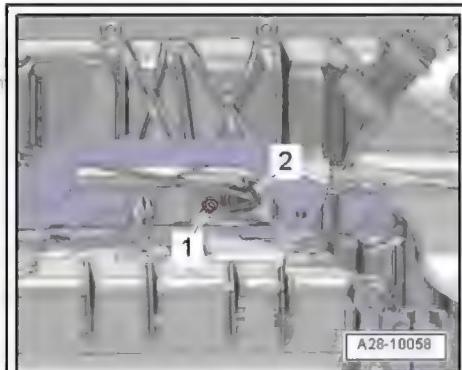


- Unplug electrical connector -2- for engine speed sender - G28- and move wiring clear.

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Disregard -item 1-.

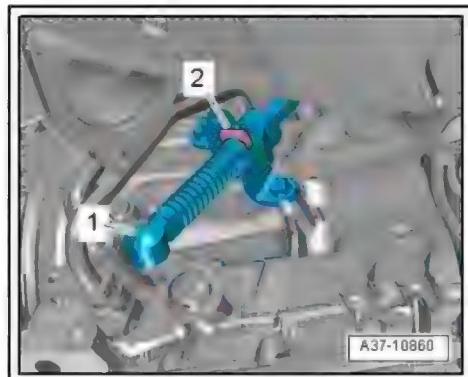


- Use removal lever - 80 - 200- to press ball socket -1- on selector lever cable off gearbox selector lever.
- Pry off retaining clip -2- and detach selector lever cable from gearbox.

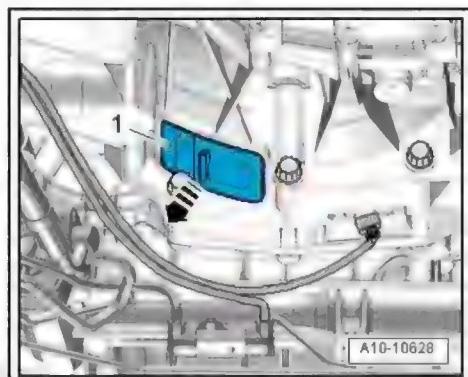


Note

Do not bend or kink the selector lever cable.



- Pull cover -1- off bottom of gearbox -arrow-.



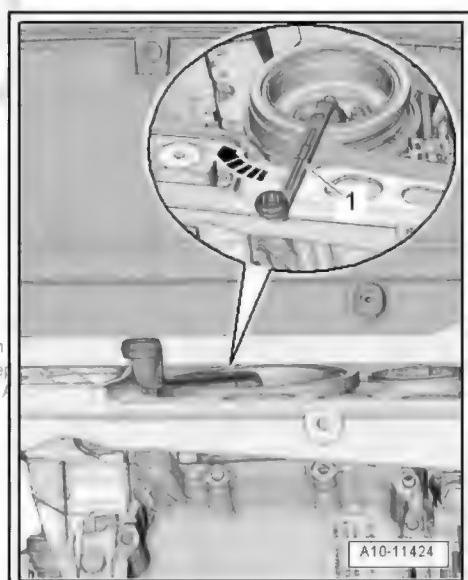
- To loosen bolts for electric drive motor - V141- , counterhold crankshaft with angled ring spanner -1- at central bolt on vibration damper.



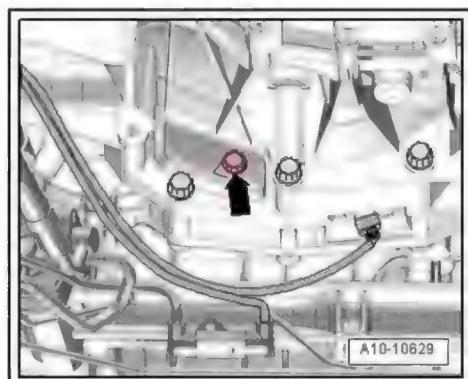
Note

When you then turn the crankshaft, only turn crankshaft in direction of engine rotation -arrow-.

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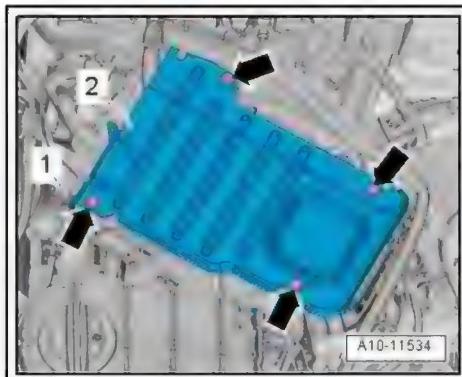


- Remove 3 bolts -arrow- securing electric drive motor - V141- to drive plate (turn crankshaft 120° in direction of engine rotation each time).





- Move clear coolant line -1-.
- Unscrew bolts -arrows- and remove cover -2-.



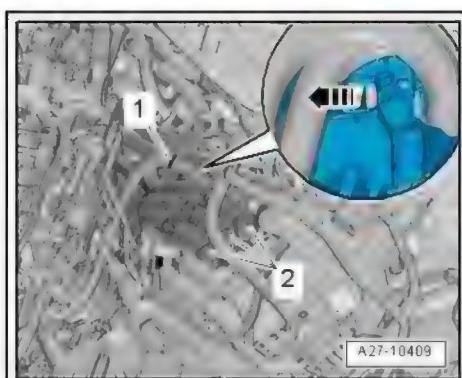
- Move electrical wiring -1- clear.



WARNING

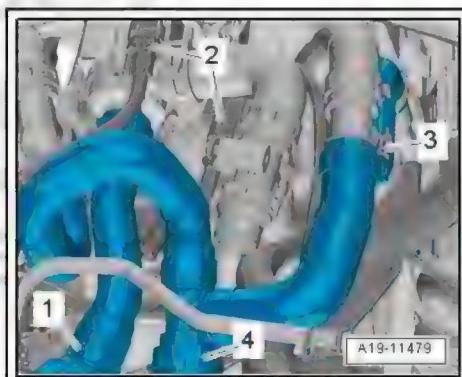
Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors; otherwise the connectors can be damaged.*

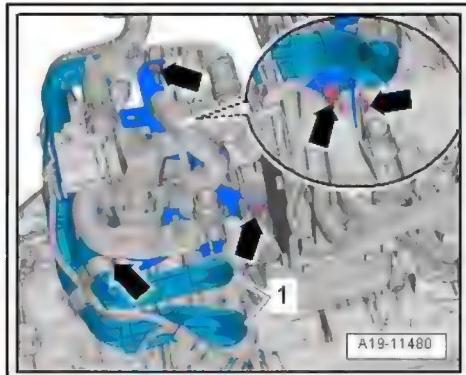


- Disconnect electrical wiring -2- from power and control electronics for electric drive - JX1- ⇒ Electrical system, hybrid; Rep. gr. 93 ; Power and control electronics for electric drive; Removing and installing power and control electronics for electric drive .
- Release catch -arrow- and move bracket with electrical wiring clear towards rear.
- Lift retaining clips -1, 4- and loosen hose clip -3- to detach coolant hoses.
- Unplug electrical connectors -2- and move clear.

Protective clothing (e.g. leather jacket and trousers) and protective gloves must be worn when working on the high-voltage system. Audi recommends wearing a protective suit designed for the protection of high-voltage systems.



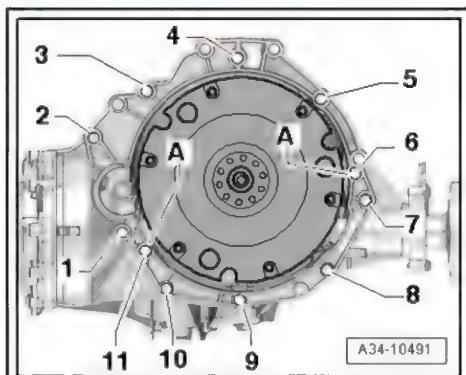
- Release hose clips -1- and detach coolant hoses.
- Remove bolts -arrows- and detach bracket with pump unit.



- Remove bolts -2 ... 5- securing engine to gearbox from gearbox side.

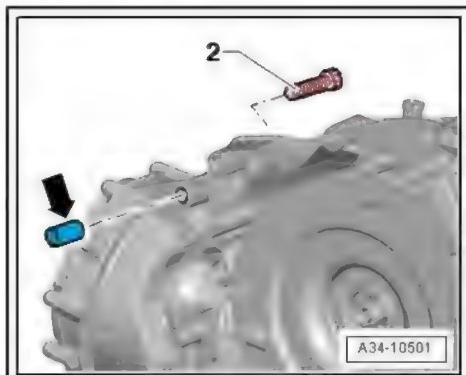
 Note

Bolts -3, 5- also secure wiring retainer on gearbox.

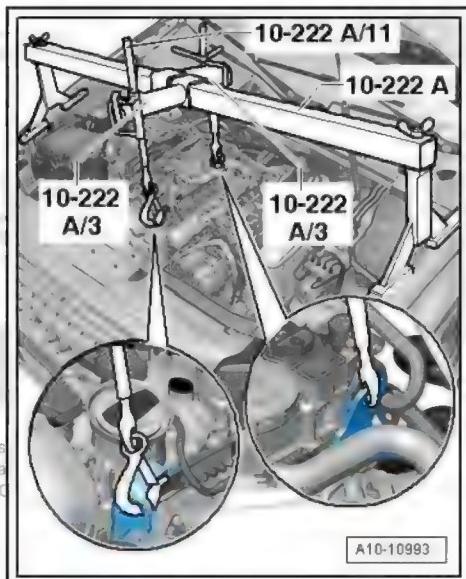


 Note

- ◆ Bolt -2- secures the starter to the gearbox and has an additional spacer sleeve -arrow-.
- ◆ Take off this sleeve when pulling out the top securing bolt for the starter.

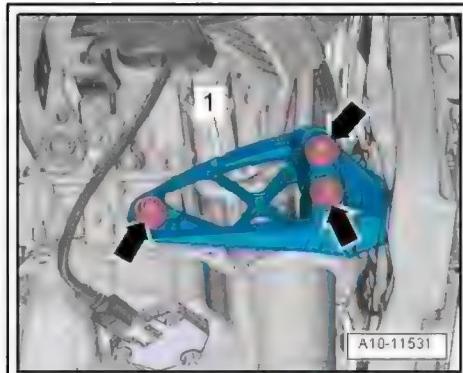


- Set up support bracket - 10 - 222 A- as shown in illustration.
- Hook spindles -10 - 222 A /11- onto engine lifting eyes (front and rear).
- Partly take up weight of engine with spindles.

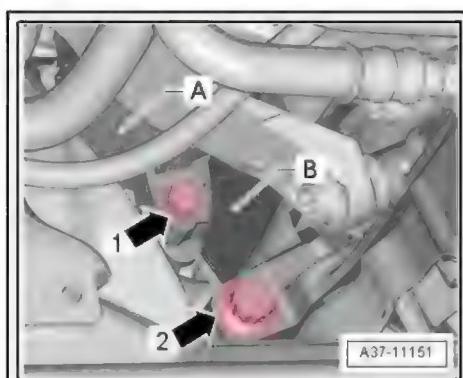




- Remove bolts -arrows- and detach torque reaction support -1-.



- Remove bottom bolt -arrow 1- for starter from engine side.
- Remove engine/gearbox securing bolt -arrow 2-.



- Remove engine/gearbox securing bolts -7 ... 10-.



Note

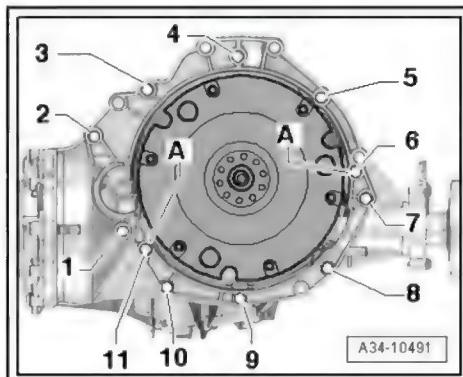
Do not remove bolt -6- at this stage.



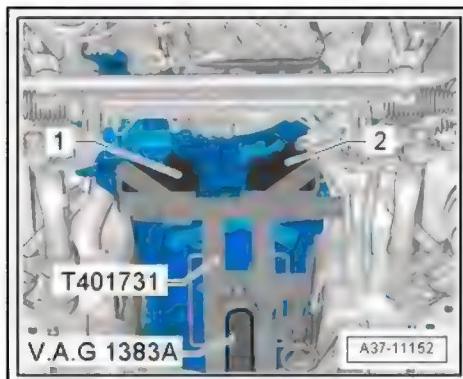
Caution

Risk of leaks on ATF oil pan.

◆ *Do not apply gearbox support - T40173- at ATF oil pan.*

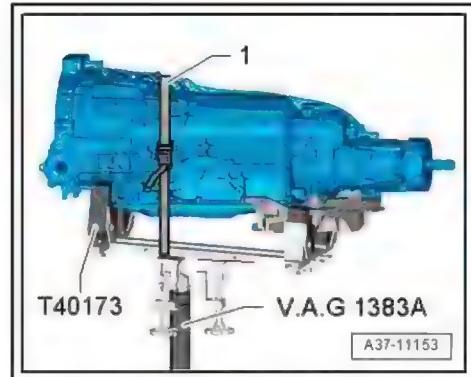


- Position engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- (already prepared [page 43](#)) underneath gearbox.
- Gearbox support must be positioned as follows at front of gearbox:
 - On left side of gearbox, mounting block -2- must be positioned against gearbox housing behind aperture for electric drive motor - V141- .
 - On right side of gearbox, mounting block -1- is positioned against front final drive.



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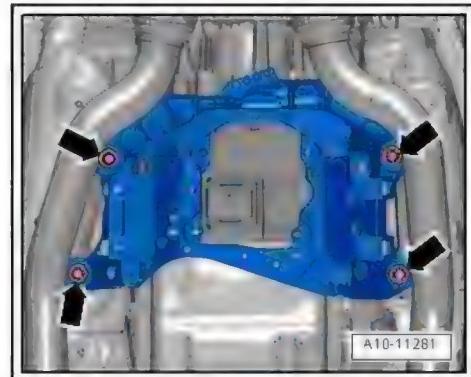
- Use tensioning strap -1- to secure gearbox.



 Note

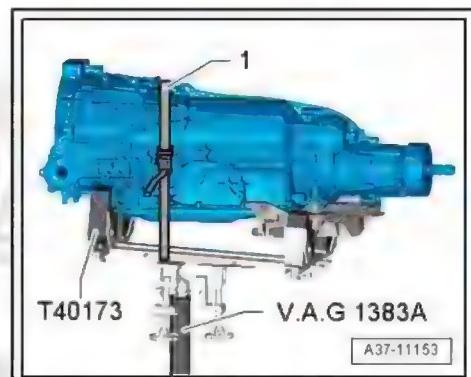
For illustration purposes, the gearbox support - T40173- is not shown.

- Remove bolts -arrows- for tunnel cross member.
- Remove last bolt securing engine to gearbox.
- Separate gearbox from engine and carefully push gearbox slightly towards the rear.
- When doing so, pay attention to steering pinion/steering rack on left side of gearbox.
- When lowering gearbox, adjust position of gearbox using spindles on gearbox support - T40173- .



 Note

- ◆ *When lowering the gearbox, make sure that no wires or hoses are trapped on the top of the gearbox.*
- ◆ *For further repairs, secure gearbox to engine and gearbox support - VAS 6095- [page 69](#) .*
- ◆ *Removing and installing electric drive motor- V141- ➤ Electrical system, hybrid; Rep. gr. 93 .*





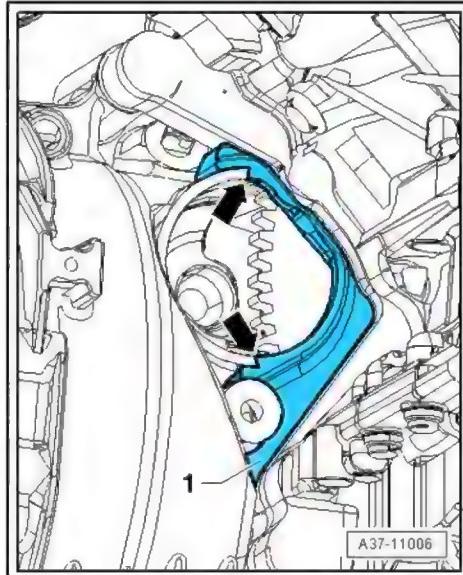
Audi A6 2011 > , Audi A7 Sportback 2011 >

8-speed automatic gearbox 0BW hybrid, front-wheel drive - Edition 08.2017

- Remove end seal -1-.



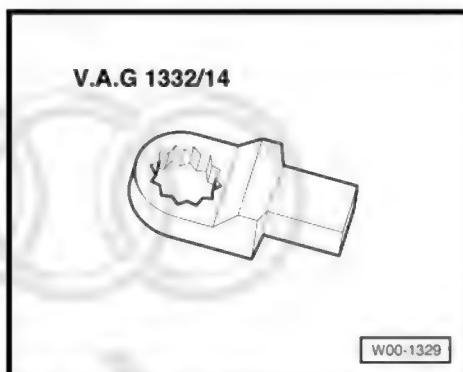
Disregard -arrows-.



2.2 Installing gearbox

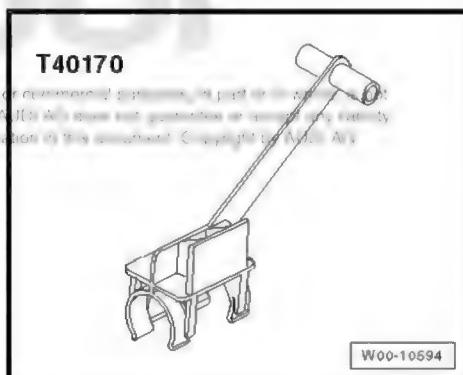
Special tools and workshop equipment required

- ◆ All special tools and workshop equipment already required for gearbox removal, plus the following additional tools.
- ◆ Vehicle diagnostic tester
- ◆ Ring spanner insert, 16 mm - V.A.G 1332/14-



- ◆ Transportation lock - T40170-

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Procedure



DANGER!

High voltage can cause fatal injury.

Danger of severe or fatal injuries from electric shock.

- ◆ *All work on the de-energised high-voltage system must be performed by an "electrically instructed person (EIP)" ⇒ Electrical system, hybrid; Rep. gr. 93 .*
- ◆ *Work on the de-energised high-voltage system may only be performed when the vehicle is clearly identified with signs to confirm that it has been de-energised, and safety measures have been taken to prevent re-energisation.*



WARNING

Observe general warning instructions for work on the high-voltage system ⇒ Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .



Note

- ◆ *Renew bolts which are tightened by turning through a specified angle. The aluminium bolts securing the engine to the gearbox can be re-used once ⇒ page 63 .*
- ◆ *Renew self-locking nuts and bolts, and seals, O-rings and gaskets.*
- ◆ *Secure all hose connections with the correct hose clips (as original equipment); refer to ⇒ Electronic parts catalogue .*
- ◆ *Re-attach all cable ties at the same locations when re-installing.*

Tightening torques for installing gearbox ⇒ page 62

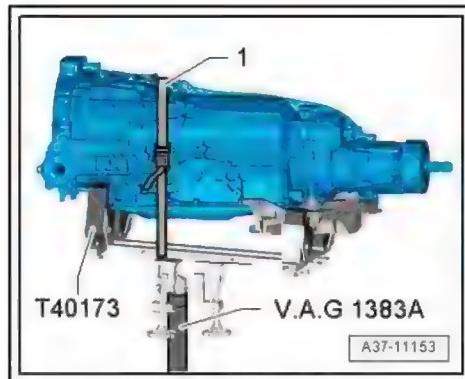
- Before fitting a replacement gearbox, always blow through the ATF cooler and ATF lines with compressed air (not more than 10 bar) ⇒ page 78 .
- Before installing gearbox, clean residue from threads for engine/gearbox connection in cylinder block using a thread tap.
- When fitting a replacement gearbox: attach gearbox support, gearbox mounting and tunnel cross member to new gearbox ⇒ page 64 .
- If not already fitted, install cable support bracket on replacement gearbox ⇒ page 18 .

**Caution**

Risk of leaks on ATF oil pan.

- ◆ *Do not apply gearbox support - T40173- at ATF oil pan.*

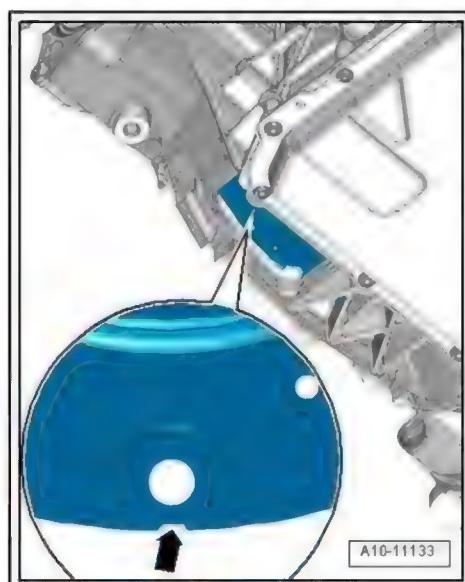
- Position gearbox on gearbox support - T40173- (already prepared [⇒ page 43](#)) and secure with tensioning strap -1-, as shown in illustration.



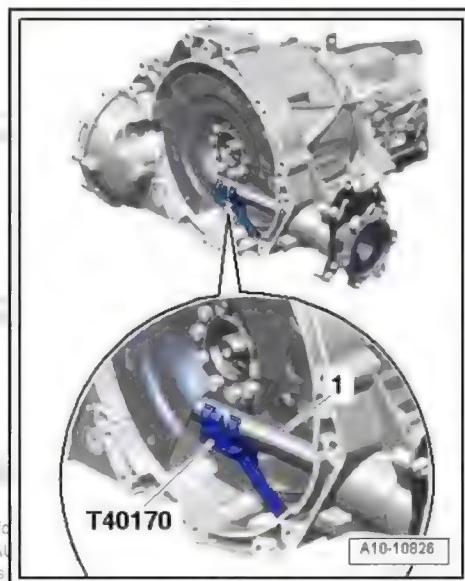
- The following preparations must be made before joining the engine and gearbox:
 - Rotate electric drive motor - V141- so that hole next to notch -arrow- is visible in recess at bottom of gearbox housing, as shown in illustration.

**Note**

There is only one notch on the circumference; turn the electric drive motor - V141- accordingly.

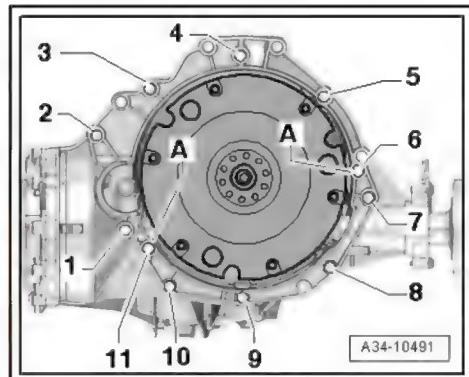


- Insert transportation lock - T40170- into gearbox housing from below and clamp onto flange shaft -1-.



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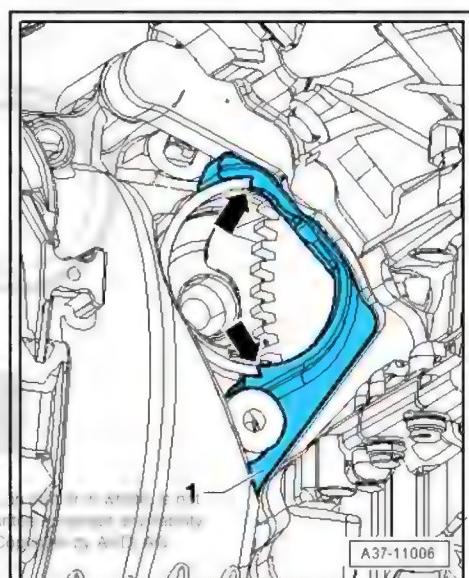
- Check that dowel sleeves -A- for centralising engine/gearbox are in the cylinder block; install any missing dowel sleeves.
- Check whether aluminium bolts for engine/gearbox connection can be reused and mark bolts if necessary [⇒ page 63](#).



- Coat end seal -1- with lubricant before fitting.



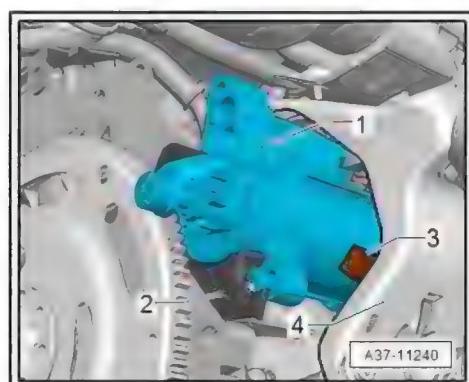
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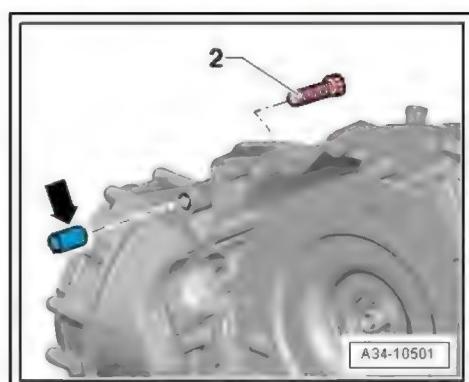
- Bring starter -1- and end seal -2- into installation position. To do so, use plastic/rubber wedge -4- to position starter in installation position while supporting starter on engine support -3-.

 Note

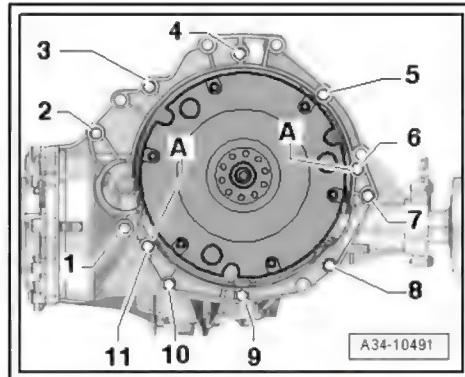
It is important to ensure that the end seal is in the correct installation position relative to the starter, as otherwise the securing bolts for the starter would be difficult to fit and the sealing function of the end seal would not be assured.



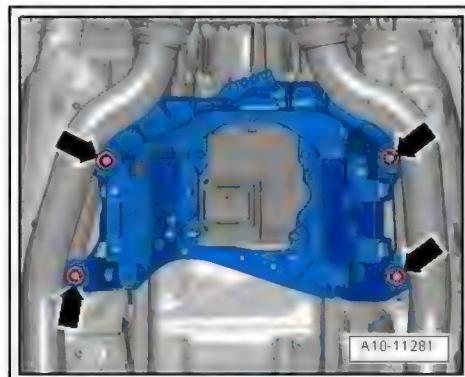
- Insert top starter bolt -2- in gearbox.
- Fit spacer sleeve -arrow- onto bolt -2-.



- Bring gearbox into position on engine and tighten bolts -6 ... 11-.
- Tighten starter using bolts -1- and -2-, making sure that end seal is in correct position.
- Remove transportation lock - T40170- .



- Raise gearbox and tighten bolts -arrows- for tunnel cross member [⇒ page 64](#) .
- Slacken tensioning strap and move engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- out from underneath gearbox.



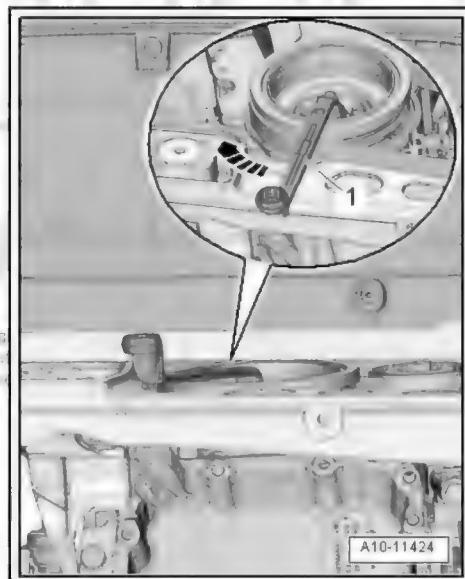
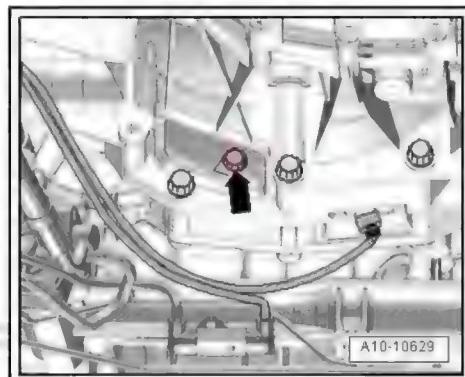
- Press electric drive motor - V141- slightly against drive plate on engine.
- Secure electric drive motor - V141- to drive plate as follows:



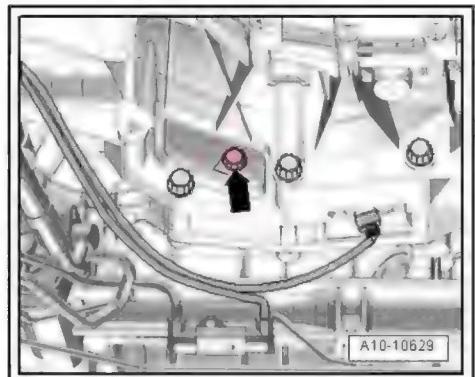
Note

Use ring spanner insert, 16 mm - V.A.G 1332/14- to tighten bolts.

- Screw in first bolt -arrow- hand-tight (2 Nm).
- Using an angled ring spanner -1-, turn crankshaft at vibration damper 240° further in direction of engine rotation -arrow-.



- Tighten bolt -arrow- accessible in this crankshaft position to specified torque ⇒ Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor; Exploded view - electric drive motor .
- Turn crankshaft 120° further each time and tighten remaining 2 bolts to specified torque.



- Tighten remaining gearbox/engine securing bolts -3 ... 5-.



Note

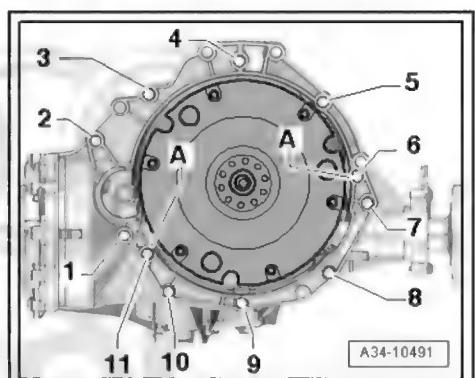
Bolts -3, 5- also secure wiring retainer on gearbox.



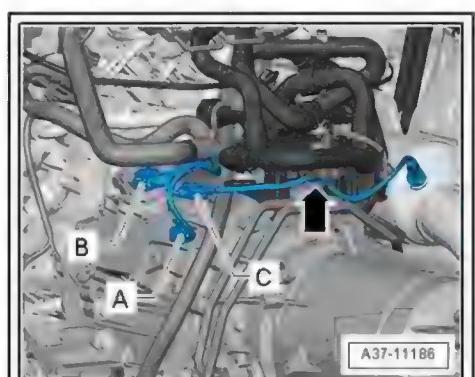
WARNING

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors; otherwise the connectors can be damaged.*



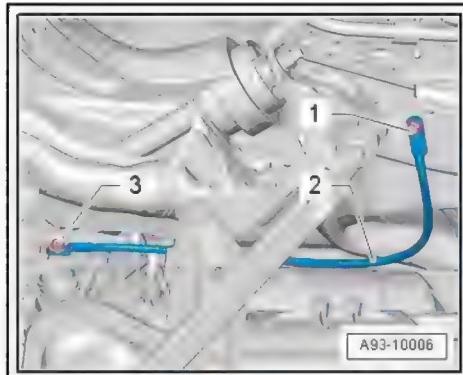
- Connect high-voltage wiring harness for drive motor - PX2- ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage wires; Removing and installing high-voltage wiring harness for drive motor .
- Attach connector -A- for high-voltage wiring harness for drive motor - PX2- and connector -B- on drive motor rotor position sender 1 - G713- at top left of gearbox.
- Plug in connector -C- for Lambda probe after catalytic converter - G130- and fit cable tie -arrow-.



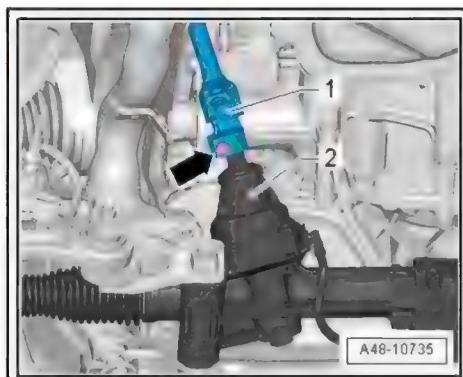
- Secure potential equalisation line -2- to gearbox with bolt -3-
⇒ Electrical system, hybrid; Rep. gr. 93 ; Potential equalisation lines .
- Install torque reaction support ⇒ Rep. gr. 10 ; Assembly mountings; Exploded view - assembly mountings .

Remaining installation steps are carried out in reverse sequence;
note the following:

- Install selector lever cable on gearbox [⇒ page 26](#) .



- Secure intermediate steering shaft to steering rack ⇒ Running gear, axles, steering; Rep. gr. 48 ; Steering column; Removing and installing intermediate steering shaft .
- Secure drive shafts (left and right) to flange shafts of gearbox
⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .

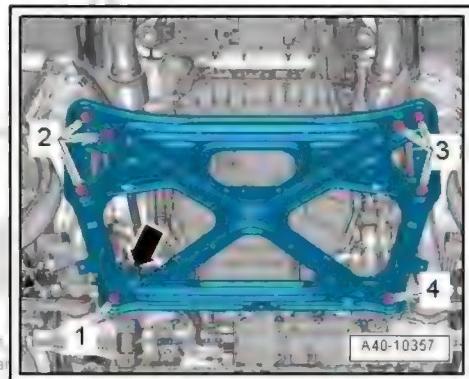


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- Install subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe .
- Install heat shield for drive shaft (right-side) ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Exploded view - drive shaft .
- Install noise insulation ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .
- Fit front wheels ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .

Re-energising high-voltage system

The high-voltage system must be re-energised according to the Guided Fault Finding routine in the vehicle diagnostic tester , and ONLY by this method.



DANGER!

High voltage can cause fatal injury.

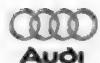
Danger of severe or fatal injuries from electric shock.

- ◆ The high-voltage system may only be re-energised by a suitably qualified person (Audi high-voltage technician).
- ◆ The system may only be re-energised using the vehicle diagnostic tester via "Guided Fault Finding".
- ◆ The vehicle is then made ready for operation again by the qualified person (Audi high-voltage technician).
- ◆ The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.



Note

- ◆ Re-energising high-voltage system:
- ◆ Connect vehicle diagnostic tester.
- ◆ Select Guided Fault Finding mode.
- ◆ Using the GoTo button, select the following menu options in succession.
- ◆ Function/Component Selection
- ◆ Body
- ◆ Electrical system
- ◆ Self-diagnosis compatible systems
- ◆ 8C - Hybrid battery management -J840
- ◆ 8C - Hybrid battery management, functions
- ◆ 51 - Re-energise high-voltage system (Rep. Gr. 93)
- Observe measures required after connecting battery ⇒ Electrical system; Rep. gr. 27 ; Battery; Disconnecting and connecting battery .



Caution

Overvoltage can cause irreparable damage to control units.

- ◆ *Do not use charger for boost starting.*

- Check selector lever cable and adjust if necessary
⇒ [page 32](#) .
- Check ATF level and top up as required ⇒ [page 79](#) .
- Connect coolant hoses with plug-in connector, check coolant level and top up as required ⇒ Rep. gr. 19 ; Cooling system/coolant; Draining and filling cooling system .
- Check whether basic setting for electric drive motor **V141** is required and perform basic setting if necessary ⇒ [Electrical system, hybrid; Rep. gr. 93](#) ; Electric drive motor .

2.3 Tightening torques for gearbox



Note

- ◆ *Tightening torques apply only to lightly greased, oiled, phosphated or black-finished nuts and bolts.*
- ◆ *Additional lubricant such as engine or gear oil may be used, but do not use graphite lubricant.*
- ◆ *Do not use parts which have been degreased.*
- ◆ *Tolerance for tightening torques is ± 15 %.*

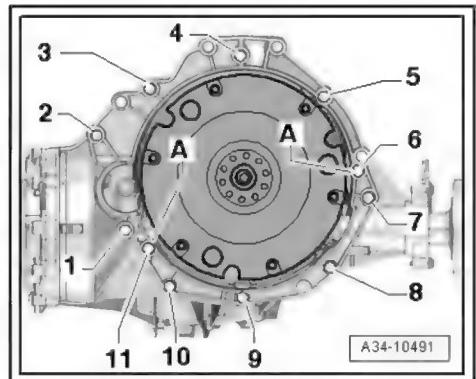
Other tightening torques:

Component		Nm
Bolts and nuts	M6	9
	M7	15
	M8	20
	M10	40
	M12	65

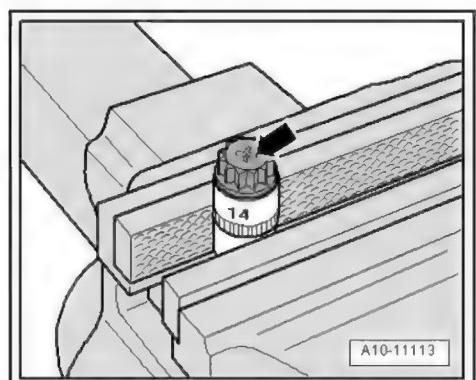
Engine/gearbox securing bolts

Item	Bolt	Nm
1 ¹⁾	M10 x 50 ²⁾	65
2 ^{1), 7}	M12 x 100 ³⁾	30 + 90°
3 ^{4), 6}	M12 x 75 ³⁾	30 + 90°
4, 5 ⁴⁾	M12 x 120 ³⁾	15 + 90°
8, 10	M10 x 75 ³⁾	15 + 90°
9	M10 x 60 ³⁾	15 + 90°
11 ⁵⁾	M12 x 50 ³⁾	30 + 90°
A	Dowel sleeves for centralising	

- 1) Also secures starter.
- 2) Property class 10.9; the steel bolt can be re-used any number of times.
- 3) Aluminium bolts can be used twice only [⇒ page 63](#).
- 4) With bracket for wiring
- 5) Installed from engine side.



- ◆ The aluminium bolts -2 ... 11- may only be used twice. After they have been used once, an "X" -arrow- must therefore be chiselled onto the bolts.
- ◆ To prevent damage to the bolts, they must not be clamped in a vice when marking them. Clamp a 14 mm socket with 1/2" drive in the vice instead, and insert the bolt into the socket, as shown in illustration.
- ◆ Bolts marked with an "X" must not be used again.



3 Assembly mountings

⇒ "3.1 Exploded view - assembly mountings", page 64

⇒ "3.2 Removing and installing tunnel cross member",
page 64

3.1 Exploded view - assembly mountings

1 - Bolt

- M10x55 (8.8): 40 Nm
- M10x40 (10.9): 70 Nm

2 - Tunnel cross member

- ⇒ "3.2 Removing and installing tunnel cross member", page 64

3 - Stop

- For gearbox mounting

4 - Gearbox mounting

- Removing and installing
⇒ Rep. gr. 10 ; Assembly mountings; Removing and installing gearbox mounting

5 - Bolt

- 40 Nm

6 - Nut

- Only remove if gearbox mounting has to be detached from gearbox support

- 20 Nm

7 - Bolt

- 40 Nm

8 - Gearbox support

- Removing and installing
⇒ Rep. gr. 10 ; Assembly mountings; Removing and installing gearbox mounting

9 - Bolt

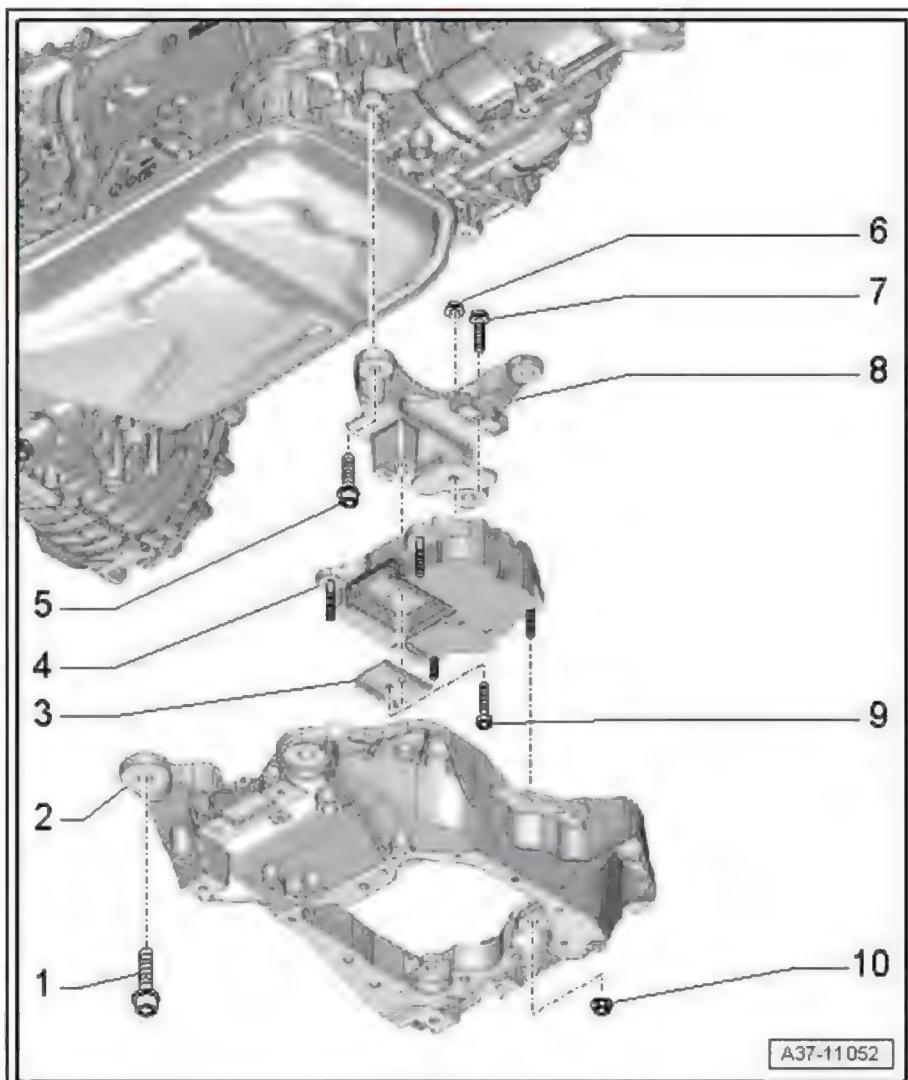
- Only remove if gearbox mounting has to be detached from gearbox support

- Renew

- 20 Nm +90°

10 - Nut

- 20 Nm



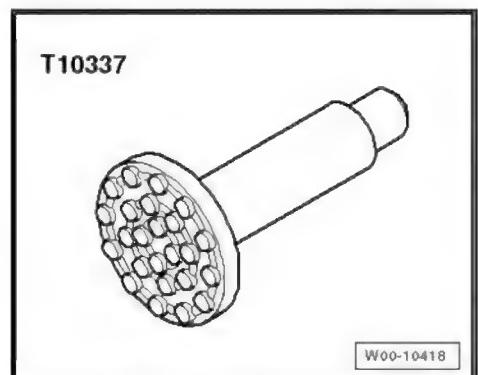
3.2 Removing and installing tunnel cross member

Special tools and workshop equipment required

◆ Engine and gearbox jack - V.A.G 1383 A-



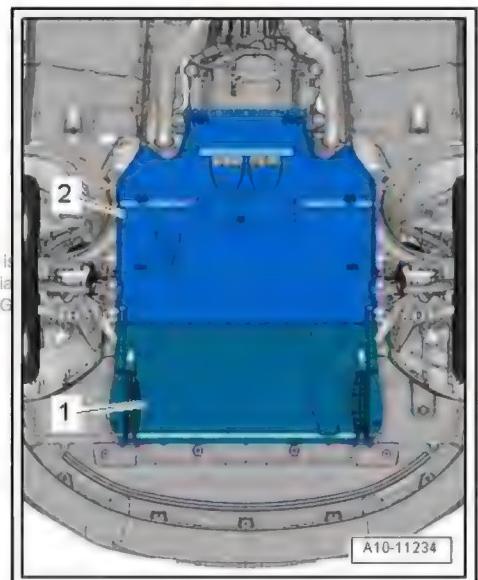
◆ Gearbox support - T10337-



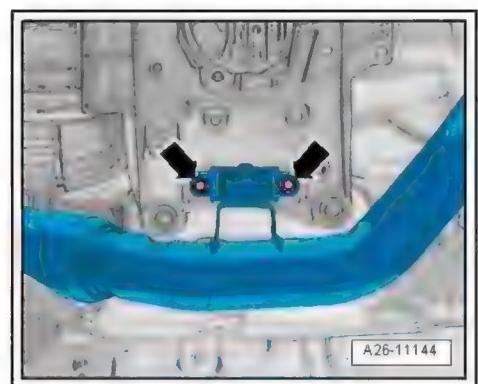
Removing

- Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

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- Remove bolts -arrows- for front exhaust pipe.



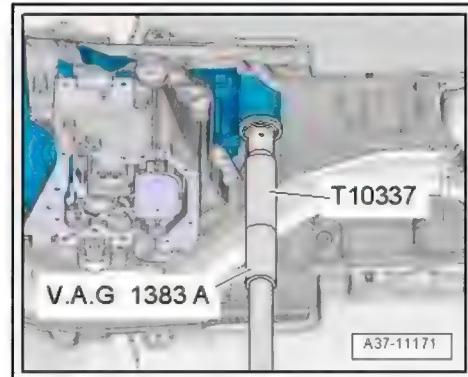


- Set up gearbox support - T10337- on engine and gearbox jack - V.A.G 1383 A- .
- Apply gearbox support - T10337- below gearbox.
- Raise gearbox slightly using engine and gearbox jack - V.A.G 1383 A- .

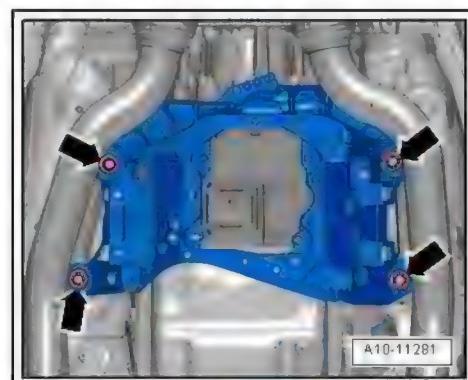
**WARNING**

Risk of accident.

- ◆ *Engine and gearbox jack - V.A.G 1383 A- must remain in position when work is being carried out and must not be left unattended.*



- Remove bolts -arrows- for tunnel cross member.



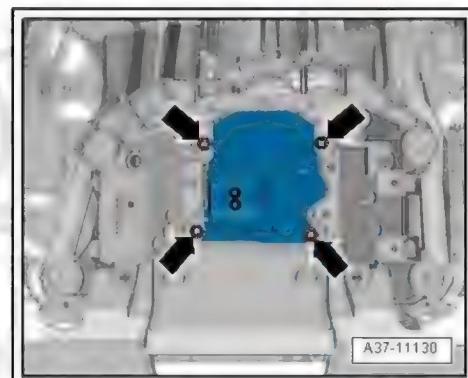
- Unscrew nuts -arrows- and remove tunnel cross member.

Installing

Installation is carried out in reverse sequence.

Tightening torques

- ◆ ⇒ ["3.1 Exploded view - assembly mountings", page 64](#)
- ◆ ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers
- ◆ ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation

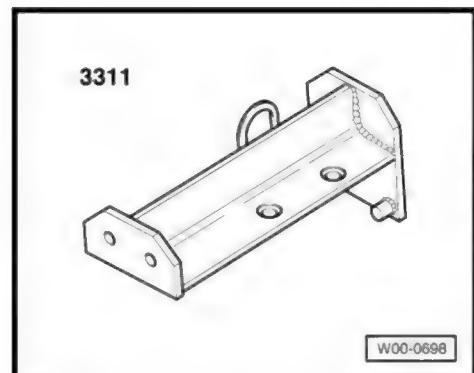


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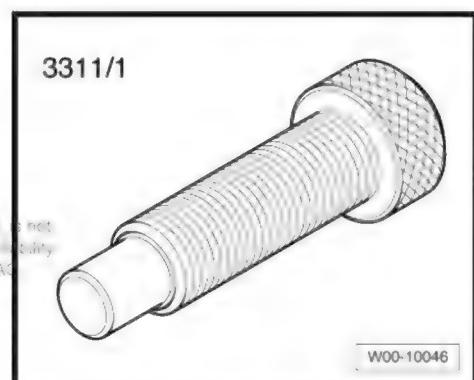
4 Transporting gearbox

Special tools and workshop equipment required

- ◆ Hook and support tool - 3311-



- ◆ Bolt -3311/1-



- ◆ Workshop hoist - VAS 6100-



Procedure

- Gearbox removed



Caution

Risk of damage to gearbox components if gearbox is not supported correctly when removed.

- ◆ *Do not set down the gearbox on its ATF oil pan.*

If not already removed, detach support bracket for selector lever cable from gearbox [⇒ page 18](#).

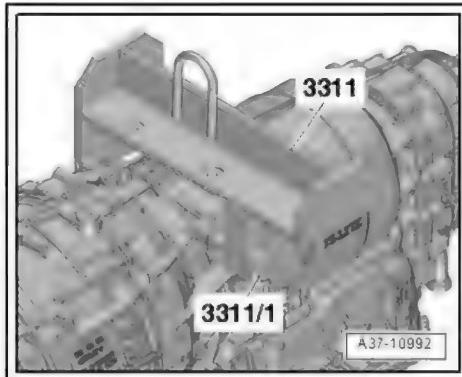


WARNING

Risk of accident if gearbox is not secured sufficiently.

- ◆ Replace bolt of hook and support tool - 3311- with new, longer bolt -3311/1- .
- ◆ Otherwise the gearbox is not secured properly.

- Secure gearbox to hook and support tool - 3311- (using new, longer bolt -3311/1-).
- The workshop hoist - VAS 6100- can be used to lift and move the gearbox.

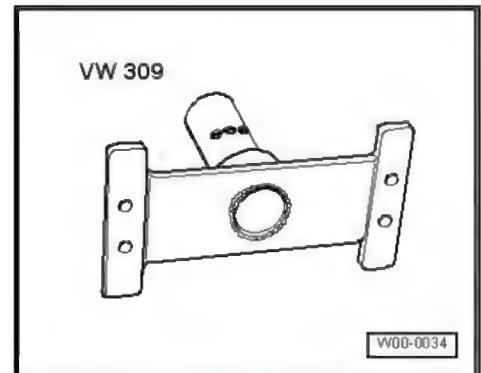


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5 Securing to engine and gearbox support

Special tools and workshop equipment required

- ◆ Retaining plate - VW 309-



- ◆ Engine and gearbox support - VAS 6095-



Procedure

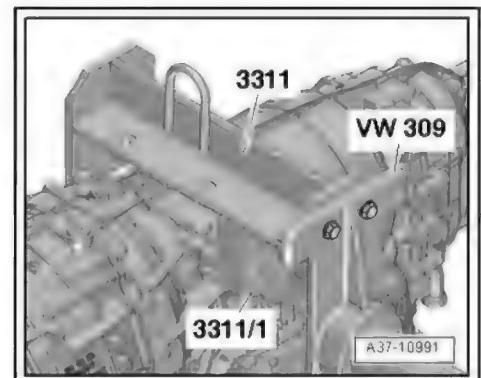
- Gearbox is on workshop hoist - VAS 6100- [⇒ page 67](#) .
- Secure support plate - VW 309- to hook and support tool - 3311- .
- Using workshop hoist - VAS 6100- , insert gearbox into engine and gearbox support - VAS 6095- .

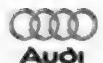


Note

If the filled gearbox with ATF oil pan is to be turned upside-down on the engine and gearbox support, the breathers for the gearbox housing and final drive must be sealed.

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6 ATF circuit

- ⇒ “6.1 Exploded view - ATF circuit”, page 70
- ⇒ “6.2 Removing and installing ATF cooler”, page 71
- ⇒ “6.3 Removing and installing ATF lines”, page 74

6.1 Exploded view - ATF circuit



Caution

Risk of damage to gearbox

- ◆ All plugs inserted in ATF lines and gearbox when dismantling must be removed.
- ◆ If you forget to remove the plugs, the ATF cooling will be ineffective and the gearbox will be damaged.

1 - Retaining clip

2 - O-ring

- Renew
- Lightly lubricate with ATF before inserting

3 - ATF cooler

- ⇒ “6.2 Removing and installing ATF cooler”, page 71

4 - Bolt

- 8 Nm

5 - O-ring

- Renew
- Lightly lubricate with ATF before inserting

6 - Retaining clip

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7 - O-ring

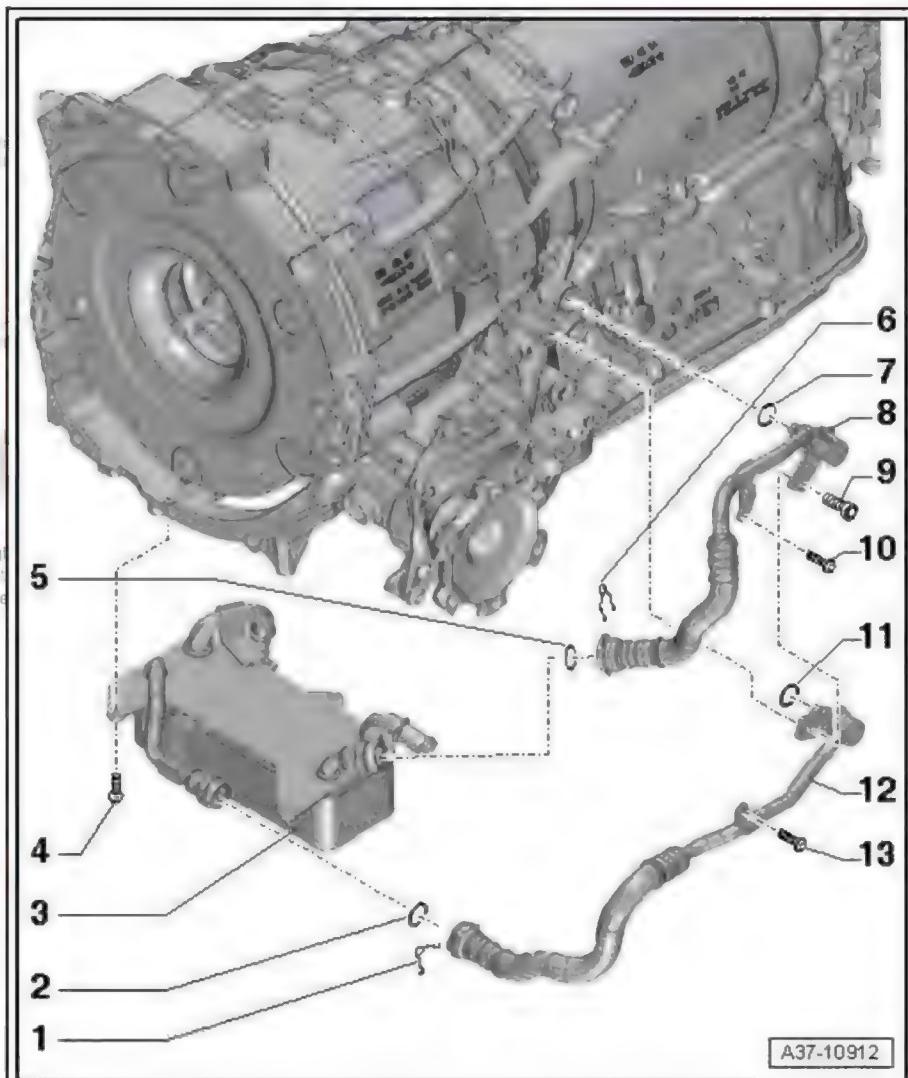
- Renew
- Lightly lubricate with ATF before inserting

8 - ATF line

- Cleaning ⇒ page 78
- Push in by hand with new O-rings as far as stop

9 - Bolt

- First push in ATF lines with new O-rings by hand as far as stop
- Retaining tab on bottom ATF line should rest on thread of gearbox
- Retaining tab on top ATF line should rest on retaining tab on bottom ATF line
- 20 Nm



A37-10912

10 - Bolt

- 8 Nm

11 - O-ring

- Renew
- Lightly lubricate with ATF before inserting

12 - ATF line

- Cleaning [⇒ page 78](#)
- Push in by hand with new O-rings as far as stop

13 - Bolt

- 8 Nm

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6.2 Removing and installing ATF cooler

Special tools and workshop equipment required

- ◆ Hose clamps, up to 25 mm - 3094-



- ◆ Used oil collection and extraction unit - VAS 6622A-





Removing

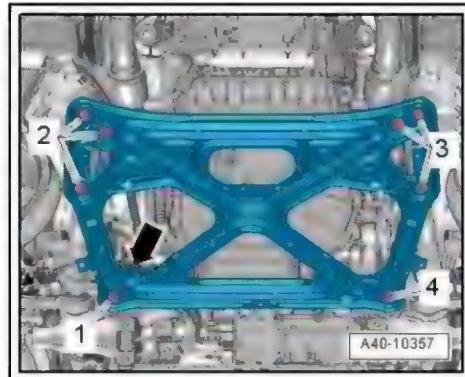
- Remove subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .



Caution

Risk of damage to parts of the running gear.

- ◆ *Do not let the vehicle down on the wheels if the gearbox mounting, steering rack or subframe cross brace are not properly installed.*



- Place used oil collection and extraction unit - VAS 6622A- below gearbox.

Vehicles up to model year 2014

- Pull off retaining clips -1- and -4- and disconnect ATF lines.



Note

Place a cloth below the connection to catch escaping coolant.

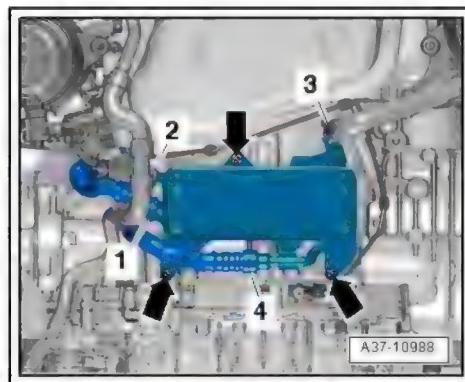
- Clamp off coolant hoses using hose clamps up to 25 mm - 3094- and disconnect hoses (release hose clips -2- and -3-).
- Remove bolts -arrows- and detach ATF cooler.

Important: Removal and installation of the ATF cooler must be carried out by a specialist workshop. Removal and installation of the ATF cooler without the correct tools is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for damage resulting from incorrect removal and installation of the ATF cooler.

Installing

Installation is carried out in reverse sequence; note the following:

- Push on ATF lines as far as stop and fit retaining clips -1- and -4-.
- Loosen, but do not remove, all three bolts -arrows- on ATF lines.



Caution

Risk of damage to ATF cooler if ATF lines are tensioned.

- ◆ *Release tension at ATF lines by loosening securing bolts.*



- Tighten bolts -arrows- to specified torque again.



Note

Renew O-rings.

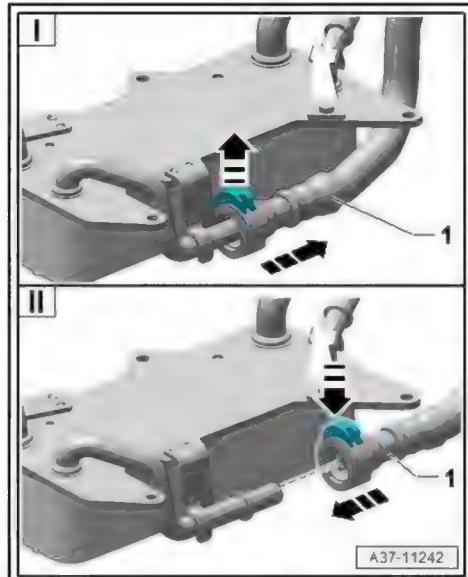
- Check ATF level [⇒ page 79](#) .

Tightening torques

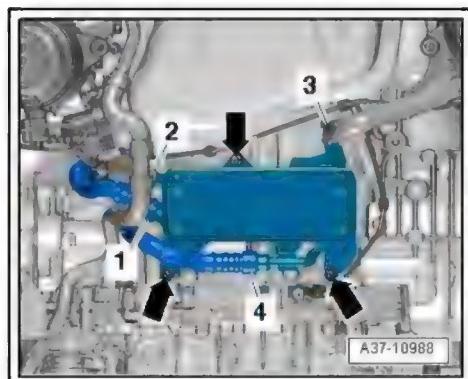
- ◆ [⇒ "6.1 Exploded view - ATF circuit", page 70](#)
- ◆ Subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe

Vehicles from model year 2014 onwards

- Press ATF line -1- all the way onto ATF connection until retainers are disengaged, and release retaining clip.
- Detach ATF line.



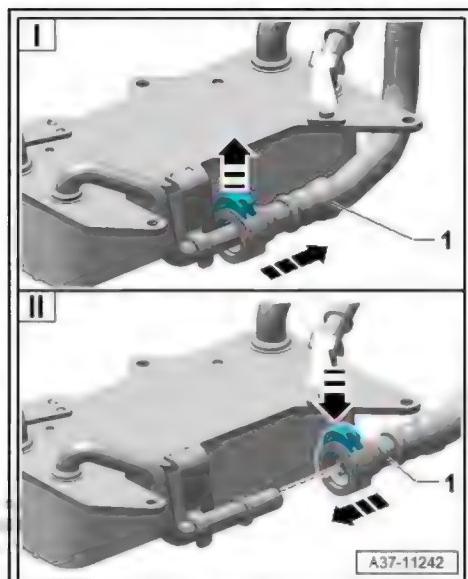
- Clamp off coolant hoses using hose clamps up to 25 mm - 3094- and disconnect hoses (release hose clips -2- and -3-).
- Remove bolts -arrows- and detach ATF cooler.



Installing

Installation is carried out in reverse sequence; note the following:

- Lightly lubricate ATF connection with ATF.
- Press ATF line -1- all the way onto ATF connection until retainers are disengaged.
- Holding in this position, press down retaining clip of quick-release coupling.



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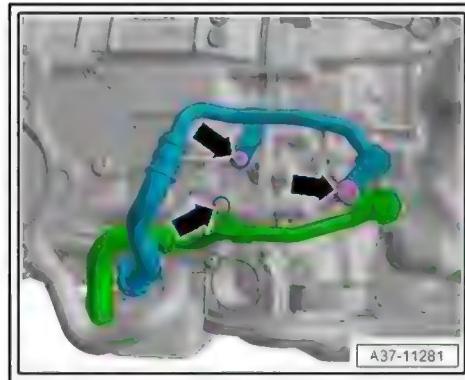
- Loosen all three bolts -arrows-, but do not remove.



Caution

Risk of damage to ATF cooler if ATF lines are tensioned.

- ◆ *Release tension at ATF lines by loosening securing bolts.*



A37-11281

- Tighten bolts -arrows- to specified torque again.
- Check ATF level [⇒ page 79](#).

Tightening torques

- ◆ [⇒ "6.1 Exploded view - ATF circuit", page 70](#)
- ◆ Subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe

6.3 Removing and installing ATF lines

Special tools and workshop equipment required

- ◆ Used oil collection and extraction unit - VAS 6622A-

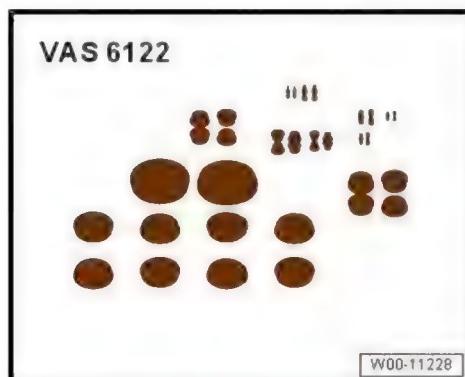
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VAS 6622 A

W00-11526

- ◆ Engine bung set - VAS 6122-



VAS 6122

W00-11228

- ◆ Hose, approx. 18 mm dia.
- ◆ Compressed-air gun (commercially available)
- ◆ Safety goggles



Note

- ◆ Refer to general repair instructions [⇒ page 9](#).
- ◆ Note rules for cleanliness when working on automatic gearbox [⇒ page 8](#).
- ◆ Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .
- ◆ Check ATF level after renewing ATF lines [⇒ page 79](#).



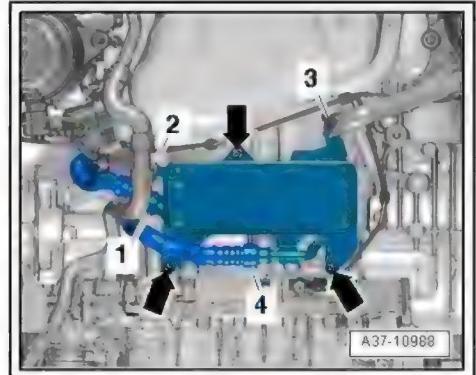
Caution

Risk of damage to gearbox

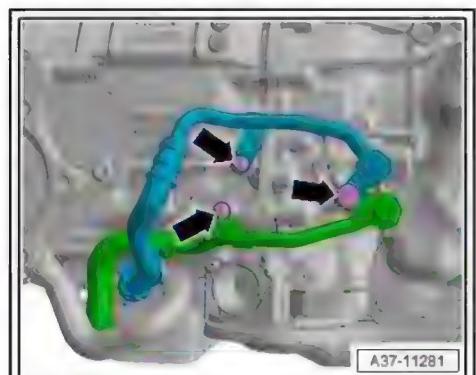
- ◆ All plugs inserted in ATF lines and gearbox when dismantling must be removed.
- ◆ If you forget to remove the plugs, the ATF cooling will be ineffective and the gearbox will be damaged.

Vehicles up to model year 2014

- Pull off retaining clips -1- and -4- and disconnect ATF lines.



- Remove bolts -arrows- and detach ATF lines.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



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Installing

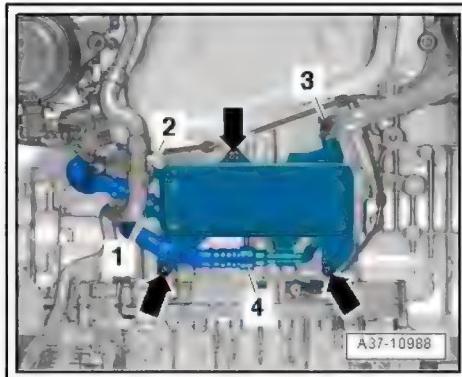
Installation is carried out in reverse sequence; note the following:



Caution

Risk of damage to gearbox

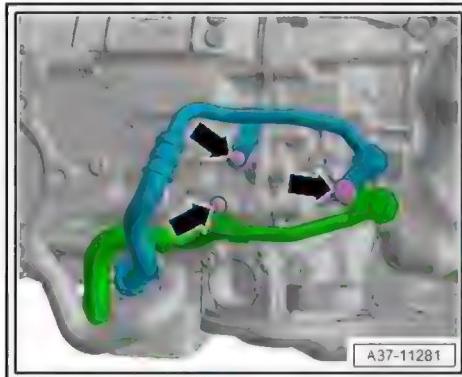
- ◆ All plugs inserted in ATF lines and gearbox when dismantling must be removed.
- ◆ If you forget to remove the plugs, the ATF cooling will be ineffective and the gearbox will be damaged.



- Push on ATF lines as far as stop and fit retaining clips -1- and -4-.
- Tighten bolts -arrows- to specified torque again.
- Check ATF level [⇒ page 79](#).

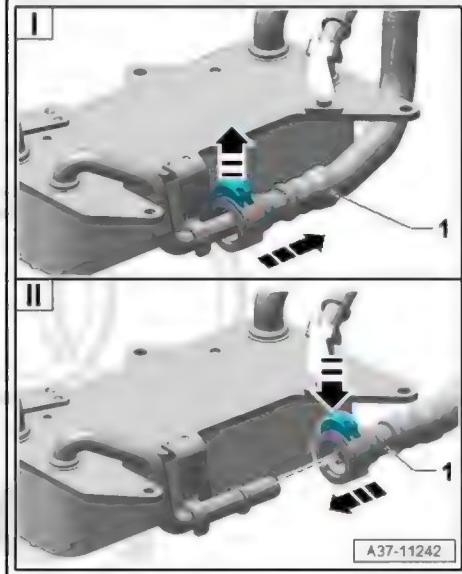
Tightening torques

- ◆ [⇒ "6.1 Exploded view - ATF circuit", page 70](#)
- ◆ Subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe



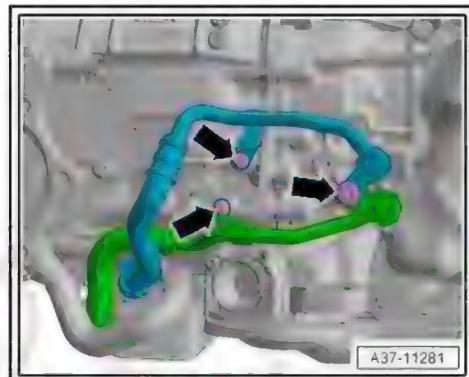
Vehicles from model year 2014 onwards

- Press ATF line -1- all the way onto ATF connection until retainers are disengaged, and release retaining clip.
- Detach ATF lines.



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- Remove bolts -arrows- and detach ATF lines.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



Installing

Installation is carried out in reverse sequence; note the following:



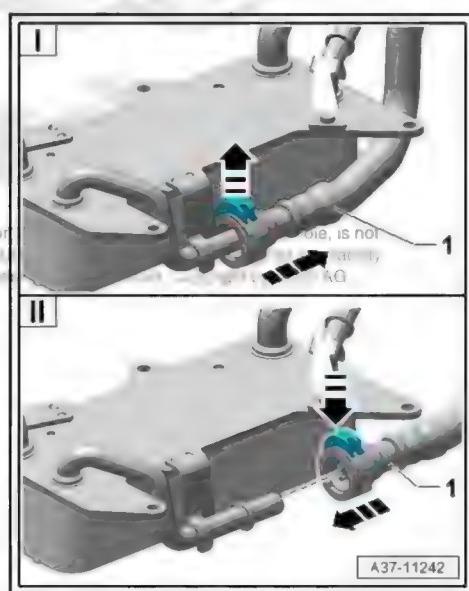
Caution

Risk of damage to gearbox

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- ◆ All plugs inserted in ATF lines and gearbox when dismantling must be removed.
- ◆ If you forget to remove the plugs, the ATF cooling will be ineffective and the gearbox will be damaged.

- Lightly lubricate ATF connection with ATF.
- Press ATF line -1- all the way onto ATF connection until retainers are disengaged.
- Holding in this position, press down retaining clip of quick-release coupling.





- Tighten bolts -arrows- to specified torque again.
- Check ATF level [⇒ page 79](#).

Tightening torques

- ◆ [⇒ "6.1 Exploded view - ATF circuit", page 70](#)
- ◆ Subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe

Cleaning

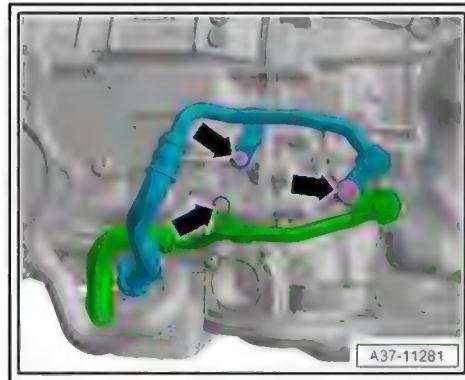


Note

*Note rules for cleanliness when working on automatic gearbox
⇒ page 8.*

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- Before fitting a replacement gearbox, always blow through the ATF cooler and ATF lines with compressed air (not more than 10 bar).
- Place used oil collection and extraction unit - VAS 6622A- below gearbox.



Note

If the ATF which emerges during cleaning is very dirty, the ATF cooler and ATF lines must additionally be flushed out with clean ATF.

7 ATF

⇒ "7.1 Checking ATF level", page 79

⇒ "7.2 Draining and filling ATF", page 82

7.1 Checking ATF level

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester
- ◆ Used oil collection and extraction unit - VAS 6622A-



- ◆ Adapter for oil filling - VAS 6262 A-



- ◆ Adapter for filling ATF oil - VAS 6262/5-
- ◆ If necessary, adapter - VAS 6262/6-



- ◆ 1 litre ATF container (genuine replacement part) ⇒ Electronic parts catalogue
- ◆ Safety goggles
- ◆ Protective gloves (acid resistant)

Test conditions

- Gearbox must not be in emergency running (backup) mode.



- Vehicle must be absolutely horizontal (drive it onto a four-pillar lifting platform or over an inspection pit).
- Gearbox is in position "P".
- Parking brake button must be pulled up to apply the electro-mechanical parking brake.
- Extractor hose(s) of an exhaust gas extractor must be connected. Extractor switched on.
- Air conditioner and heating switched off.
- Vehicle diagnostic tester is connected.



Note

The ATF temperature should not be higher than 30° C - 35° C at the beginning of the test (the temperature will rise during the test). This is because the oil level measurement value is only correct if measured between 35°C and 45°C (maximum 50°C in hot climates).



Caution

Risk of damage to gearbox

- ◆ Use only the ATF supplied as a replacement part for automatic gearbox 0BW. For allocation see => Electronic parts catalogue .
- ◆ Other types of oil cause malfunctions and/or failure of the gearbox.
- ◆ The tools for filling ATF oil must be clean and the ATF must not be mixed with other types of ATF!
- ◆ The engine must not be started if only a little or no ATF remains in gearbox after repair work or after excessive ATF leakage.

Procedure

- Using the diagnostic tester in Guided Fault Finding mode, go to **Function/Component Selection** and select the following menu items:
 - ◆ **Drive system**
 - ◆ **0BL gearbox**
 - ◆ **01 – Self-diagnosis compatible systems**
 - ◆ **02 – Gearbox electronics**
 - ◆ **02 – Gearbox electronics, Functions**
 - ◆ **02 – Measured values**
- Select the value for **Gearbox oil temperature** (ATF) from the menu.
- Read off ATF temperature.



Checking and correcting ATF level



Caution

Risk of damage to gearbox

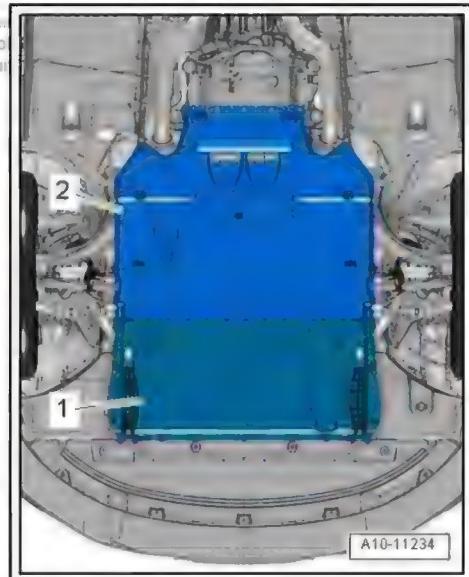
- ◆ Automatic gearbox 0BW is overfilled with a small amount of ATF during production.
- ◆ This drains out when ATF inspection and filler plug is opened and must be refilled.

- Remove rear noise insulation -2- ➤ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Start engine with selector lever in position "P".



Note

- ◆ Only start the engine when all the necessary items have been prepared. The ATF temperature increases very quickly; this may make it impossible to perform the ATF level check.
- ◆ This is a hybrid drive vehicle! The engine must be running when performing the ATF level check. To start the engine, open the bonnet or operate the kickdown function on the accelerator pedal module.
- With brake pedal still depressed, select all gear positions ("P", "R", "N", "D/S") one after the other at idling speed, maintaining each position for at least 10 seconds.
- Shift gearbox into "P".
- Allow engine to continue running at idling speed.
- Place used oil collection and extraction unit - VAS 6622A- below gearbox.



WARNING

Risk of injury

- ◆ Put on safety goggles.
- ◆ Wear protective gloves (acid resistant).

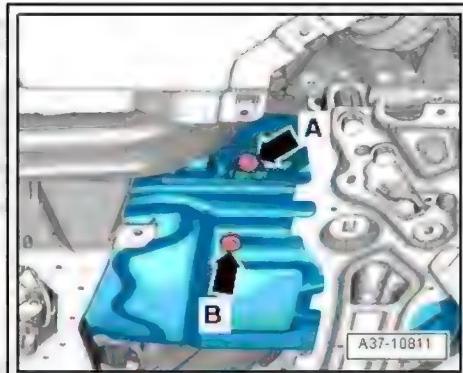


- When an ATF temperature of 35 °C is reached, unscrew plug for ATF inspection and filler hole -arrow A- and drain off any surplus ATF.
- A small amount of fluid should come out at the ATF inspection and filler hole -arrow A- when the ATF temperature is between 35 °C and 45 °C (maximum 50° C in hot climates) (the fluid level rises due to expansion as it warms up).
- If no ATF comes out, fill up with ATF [⇒ page 82](#).

Note

- ◆ You should add some ATF at a temperature of about 40° C; doing so will decrease the likelihood that the check will have to be performed again because the ATF level is too low (this would mean cooling the gearbox to the test temperature).
- ◆ The ATF inspection and filler hole must be sealed again before the ATF temperature reaches 45 °C (or a maximum of 50 °C in hot climates).
- ◆ Renew plug for ATF inspection and filler hole.

- Tighten new plug -A- for ATF inspection and filler hole.



Caution

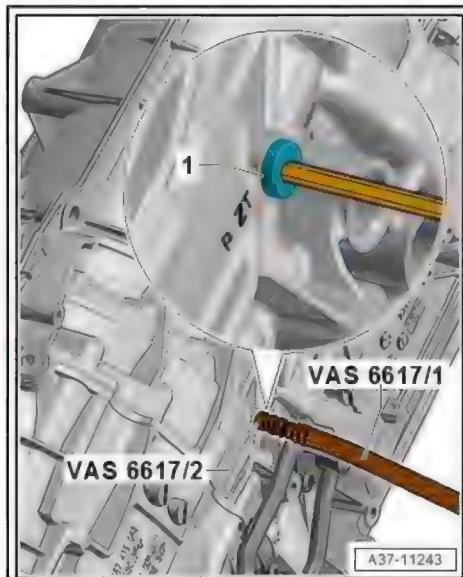
Risk of damage to gearbox

- ◆ Automatic gearbox 0BW is overfilled with a small amount of ATF during production.
- ◆ This drains out when ATF inspection and filler plug is opened and must be refilled.

- Switch off engine.
- Unscrew plug for filler hole -1- and put in 360 ml ± 10 ml ATF using hand pump for gear oil - VAS 6617- .
- Screw plug -1- back in and tighten.

Tightening torques

- ◆ [⇒ "2.1 Overview of fitting locations - drain and inspection plugs", page 111](#)
- ◆ [⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation](#)



7.2 Draining and filling ATF

Special tools and workshop equipment required

◆ Used oil collection and extraction unit - VAS 6622A-



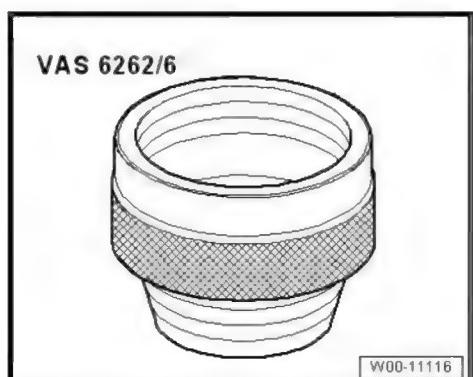
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◆ Adapter for oil filling - VAS 6262 A-



◆ Adapter for filling ATF oil - VAS 6262/5-

◆ If necessary, adapter - VAS 6262/6-



◆ 1 litre ATF container (genuine replacement part); for part number refer to ⇒ Electronic parts catalogue .

◆ Safety goggles

◆ Protective gloves (acid resistant)

Draining



Note

When draining the ATF the gearbox should be warm (operating temperature). However, the engine must not be started when there is no ATF in the gearbox or if the level is too low.

- Engine not running.
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Gearbox is in position "P".

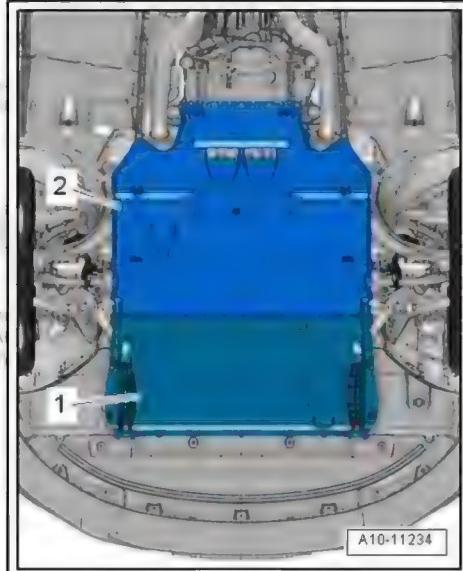


Audi A6 2011 > , Audi A7 Sportback 2011 >

8-speed automatic gearbox 0BW hybrid, front-wheel drive - Edition 08.2017

- Parking brake button must be pulled up to apply the electro-mechanical parking brake.
- Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

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- Place used oil collection and extraction unit - VAS 6622A- below gearbox.

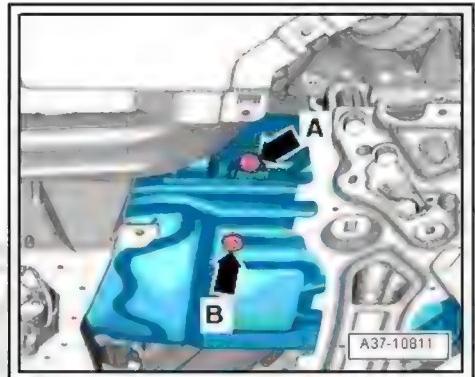


WARNING

Risk of injury.

- ◆ Put on safety goggles.
- ◆ Wear protective gloves (acid resistant).

- Remove ATF drain plug -arrow B- and allow ATF to drain off.



Note

- ◆ Always adhere to waste disposal regulations.
- ◆ Renew ATF drain plug with seal.
- ◆ Renew plug for ATF inspection and filler hole.

- Tighten new drain plug -arrow B-.

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Caution

Risk of damage to gearbox

- ◆ Only the ATF available as a replacement part may be used for the automatic gearbox 0BW.
- ◆ For correct version, refer to ⇒ Electronic parts catalogue
- ◆ Other types of oil cause malfunctions and/or failure of the gearbox.
- ◆ The tools for filling ATF oil must be clean and the ATF must not be mixed with other types of ATF!
- ◆ The engine must not be started if only a little or no ATF remains in gearbox after repair work or after excessive ATF leakage.

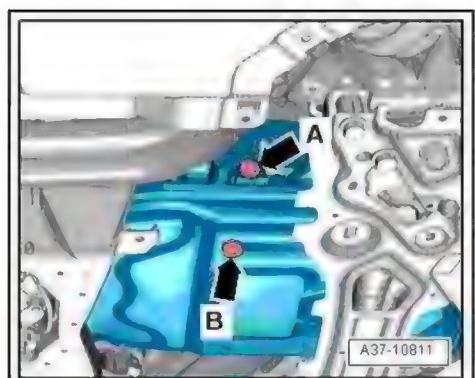
Filling up ATF

- Unscrew plug for ATF inspection and filler hole -arrow A-.
- Shake ATF container before opening.
- Screw 1 litre ATF container onto adapter for oil filling - VAS 6262 A- ; for part number refer to ⇒ Electronic parts catalogue .



Note

If thread on ATF container does not fit onto adapter for oil filling - VAS 6262 A- , use adapter - VAS 6262/6- .



- Secure ATF container with adapter for oil filling - VAS 6262 A- as high as possible on vehicle.



- Insert adapter for filling ATF oil - VAS 6262/5- into ATF inspection and filler hole -arrow-.
- Fill up with ATF via adapter until ATF comes out of inspection and filler hole.
- Shift gearbox into "P".
- Start engine and turn off after 20 seconds.
- Continue filling with ATF using adapter until ATF comes out of inspection hole.
- Start engine.
- Continue filling with ATF via adapter until ATF comes out of inspection and filler hole again.
- Tighten old plug for ATF inspection and filler hole.
- With brake pedal depressed, select all gear positions ("P", "R", "N", "D/S") one after the other at idling speed, maintaining each position for at least 3 seconds.
- Shift gearbox into "P".
- Switch off engine.
- Check ATF level and top up as required [⇒ page 79](#).



Note

Observe all notes and test requirements for "Checking and correcting ATF level".

Tightening torques

- ◆ [⇒ "2.1 Overview of fitting locations - drain and inspection plugs", page 111](#)

38 – Gears, control

1 ATF system

⇒ "1.1 Removing and installing oil pan", page 87

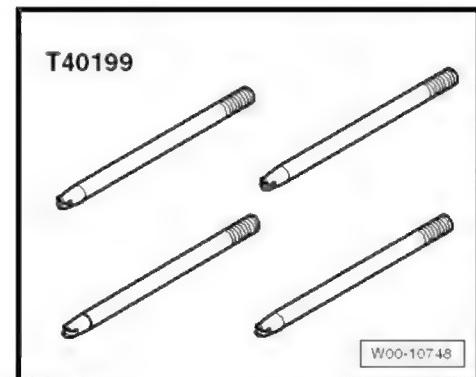
⇒ "1.2 Removing and installing ATF strainer", page 90

For all further ATF system procedures, refer to ⇒ Servicing 8-speed automatic gearbox; Rep. gr. 38 ; ATF system .

1.1 Removing and installing oil pan

Special tools and workshop equipment required

- ◆ Guide pin - T40199-



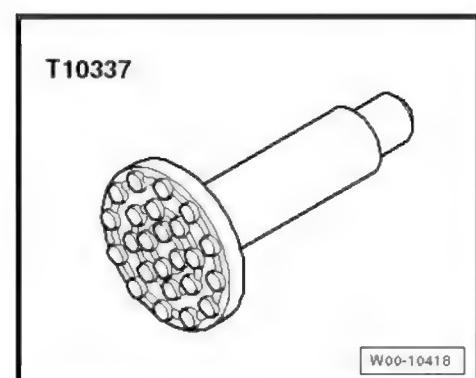
W00-10748

- ◆ Engine and gearbox jack - V.A.G 1383 A-



W00-11135

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W00-10418



Removing



Note

- ◆ Rules for cleanliness when working on the automatic gearbox
⇒ [page 8](#)
- ◆ General repair instructions ⇒ [page 9](#).

Observe safety precautions ⇒ [page 2](#).

- Switch off ignition.
- Remove subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Removing and installing subframe cross brace .



Caution

Risk of damage to parts of the running gear.

- ◆ Do not let the vehicle down on the wheels if the gearbox mounting, steering rack or subframe cross brace are not properly installed.
- Remove gearbox support with gearbox mounting ⇒ Rep. gr. 10 ; Assembly mountings; Removing and installing gearbox mounting .
- Drain ATF ⇒ [page 82](#) .
- Remove bolts for ATF oil pan in the sequence -12 ... 1-.
- Remove ATF oil pan.

Installing

Installation is carried out in reverse sequence; note the following:

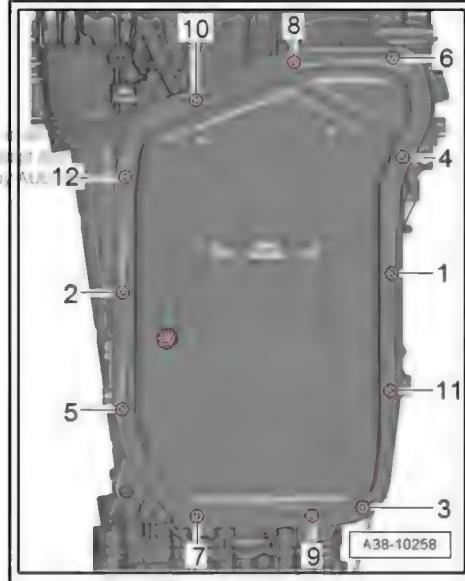
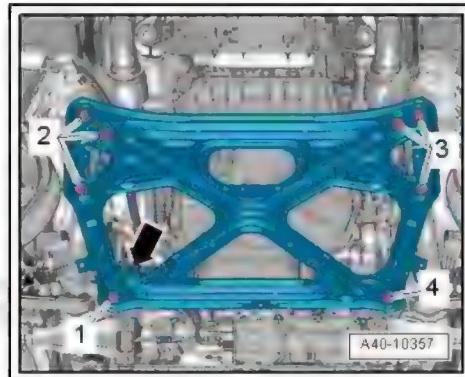
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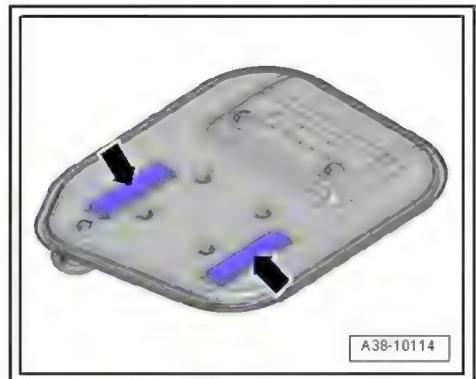


Note

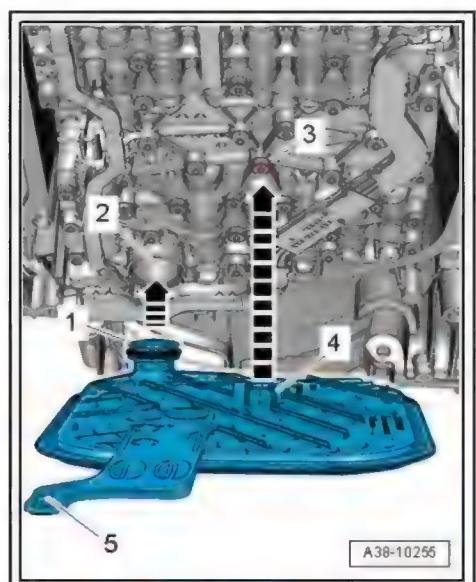
- ◆ Renew gasket and bolts for ATF oil pan.
- ◆ If the vehicle mileage is high, it is recommended to renew the ATF filter when removing the ATF oil pan ⇒ [page 90](#) . Otherwise the ATF filter only has to be renewed if it has been damaged.



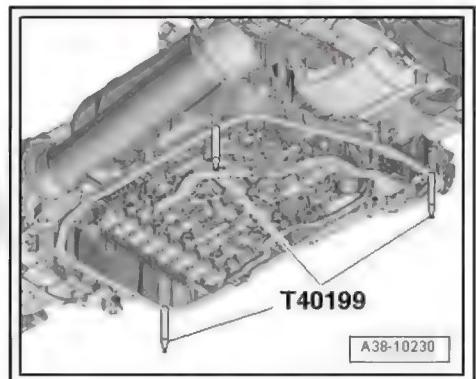
- Clean both magnets -arrows-. Ensure that magnets make full contact with recesses in ATF filter.
- Clean sealing surface thoroughly; remaining material from the previous gasket must be removed completely.



- Make sure that the ATF filter is fitted correctly on the mechatronic unit, otherwise the ATF oil pan cannot be seated properly on the entire surface.
 - ◆ The intake neck -1- of the ATF filter must be inserted as far as the stop in aperture -2- of the mechatronic unit.
 - ◆ The retainer -4- on the reverse side must engage on the bolt -3- located opposite on the mechatronic unit.
 - ◆ The intake neck -5- of the ATF filter must be inserted as far as the stop in the aperture of the auxiliary hydraulic pump 1 for gearbox oil - V475- .



- Screw in the three guide pins - T40199- hand-tight, as shown in illustration.
- Fit ATF oil pan with new gasket over guide pins - T40199- and onto gearbox.



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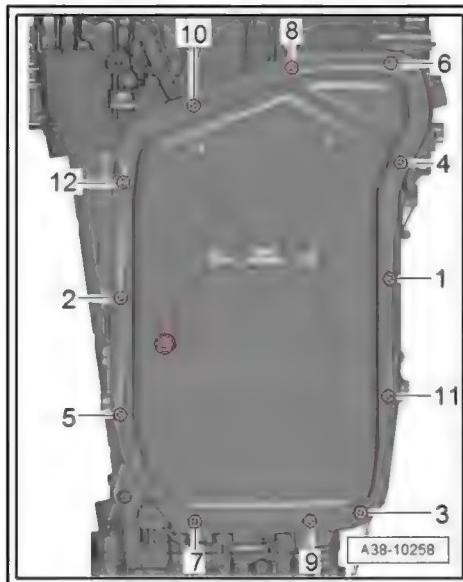
- Screw in bolts -1 and 2- by hand until bolt heads make contact.
- Remove guide pins - T40199- and tighten bolts in specified sequence.
- Tighten bolts in 3 stages in the sequence shown:

Stage	Bolts	Tightening torque/angle specification
1.	-1 ... 12-	Screw in new bolts by hand until bolt heads make contact
2.	-1 ... 12-	4 Nm
3.	-1 ... 12-	Turn 45° further

- Fill up with ATF [page 82](#).

Tightening torques

- ◆ ["3.1 Exploded view - assembly mountings", page 64](#)
- ◆ Subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40 ; Subframe; Exploded view - subframe



1.2 Removing and installing ATF strainer

Special tools and workshop equipment required

- ◆ Used oil collection and extraction unit - VAS 6622A-

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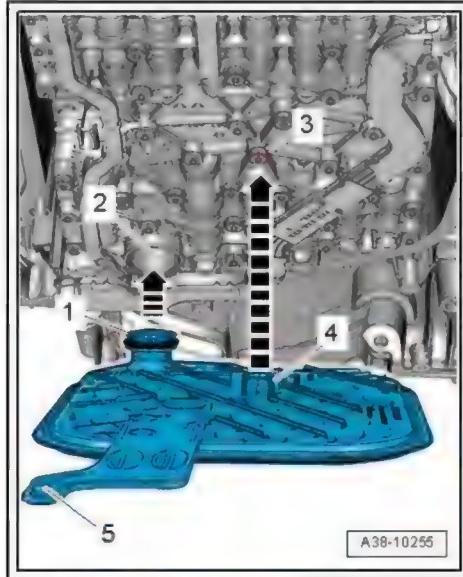


Removing



Note

- ◆ Rules for cleanliness when working on the automatic gearbox [page 8](#)
- ◆ General repair instructions [page 9](#).
- Remove ATF oil pan [page 87](#).
- Place used oil collection and extraction unit - VAS 6622A- below gearbox.
- Carefully pull ATF filter downwards off mechatronic unit and auxiliary hydraulic pump 1 for gearbox oil - V475- in opposite direction to -arrows-.



Installing

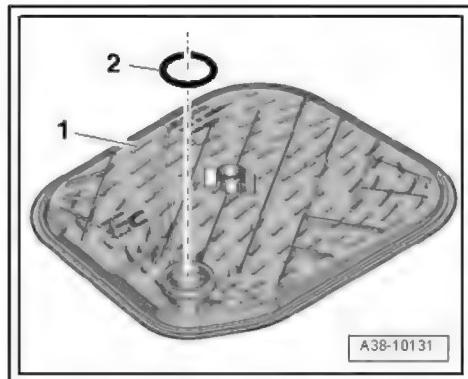
Installation is carried out in reverse sequence; note the following:



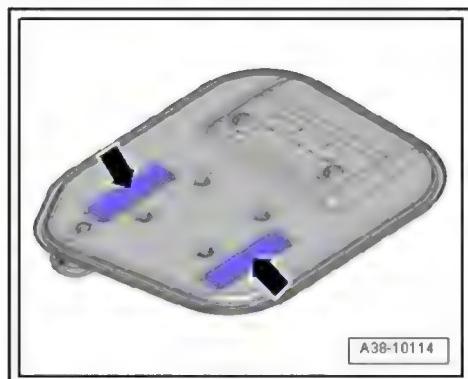
Note

Renew O-ring.

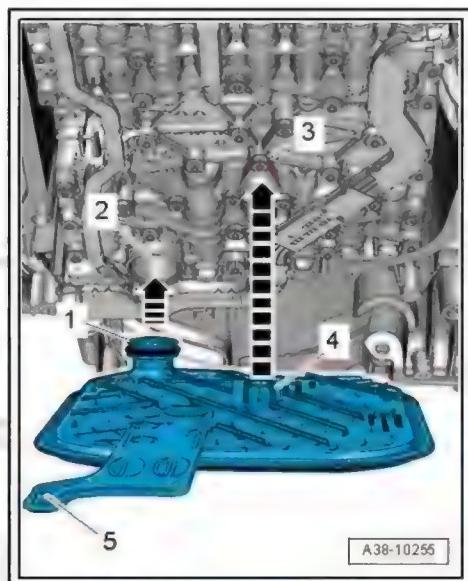
- Fit O-ring -2- on ATF filter -1- and lubricate lightly with ATF.



- Clean both magnets -arrows-. Ensure that magnets make full contact with recesses in ATF filter.



- Fit ATF filter on mechatronic unit as follows.
 - ◆ The intake neck -1- of the ATF filter must be inserted as far as the stop in aperture -2- of the mechatronic unit.
 - ◆ The retainer -4- on the reverse side must engage on the bolt -3- located opposite on the mechatronic unit.
 - ◆ The intake neck -5- of the ATF filter must be inserted as far as the stop in the aperture of the auxiliary hydraulic pump 1 for gearbox oil - V475- .
- Install ATF oil pan [⇒ page 87](#) .
- Fill up with ATF [⇒ page 82](#) .





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2 Mechatronic unit

For all mechatronic unit procedures, refer to ⇒ **Servicing 8-speed automatic gearbox; Rep. gr. 38 ; Mechatronic unit .**



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3 Electric drive motor

- ⇒ "3.1 Exploded view - electric drive motor", page 93
- ⇒ "3.2 General description - electric drive motor", page 94
- ⇒ "3.3 Performing basic setting for electric drive motor", page 94
- ⇒ "3.4 Removing and installing electric drive motor", page 95
- ⇒ "3.5 Checking hub of electric drive motor", page 102
- ⇒ "3.6 Renewing oil seal for electric drive motor", page 102

3.1 Exploded view - electric drive motor

1 - Gearbox housing

2 - Connection for coolant lines for electric drive motor - V141-

3 - Bolt

- 20 Nm

4 - Bolt

- 20 Nm

5 - Connection box housing for high-voltage wires

- Connection for high-voltage wires to electric drive motor - V141-
- Coding of high-voltage wires to electric drive motor - V141- ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage wires; Identification of high-voltage wiring

6 - Cover for connection box for high-voltage wires

- Renew seal on cover for connection box
- Removing and installing ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage wires; Removing and installing high-voltage wiring harness for drive motor

7 - Bolt

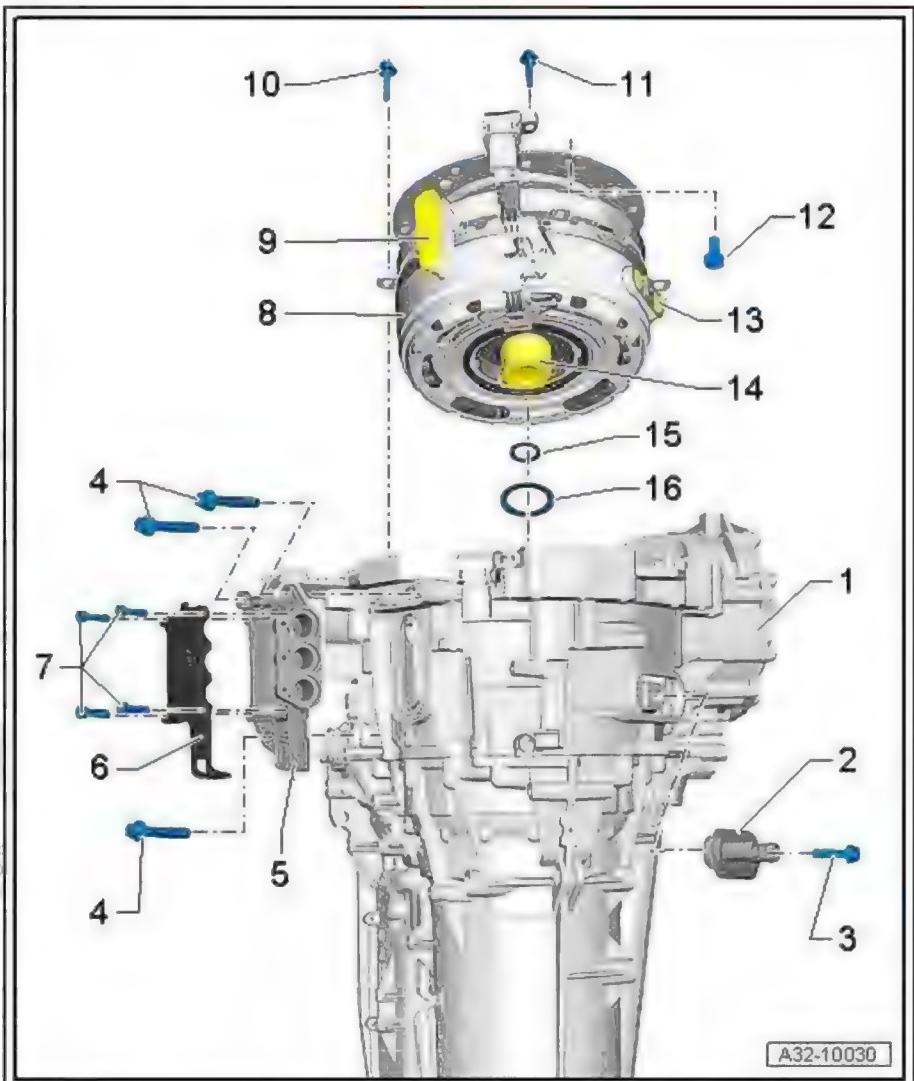
- Tightening torque ⇒ Electrical system, hybrid; Rep. gr. 93 ; High-voltage wires; Removing and installing high-voltage wiring harness for drive motor

8 - Electric drive motor - V141-

- ⇒ "3.4 Removing and installing electric drive motor", page 95
- Checking hub of electric drive motor - V141- ⇒ page 102

9 - Protective cap for high-voltage connections

- To be fitted during removal and installation of electric drive motor - V141-





10 - Bolt

- Renew
- 10 Nm +75°

11 - Bolt

- 10 Nm

12 - Bolt

- Renew
- 3x, for securing electric drive motor - V141- to drive plate
- Tightening sequence ⇒ ["2 Removing and installing gearbox", page 41](#)

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13 - Protective cap for coolant line connections

- To be fitted during removal and installation of electric drive motor - V141-

14 - Protective cap for connection to gearbox

- To be fitted after removal of electric drive motor - V141-
- Remove before installing electric drive motor - V141-

15 - O-ring

- For input shaft
- Renew

16 - Oil seal

- For electric drive motor - V141-

⇒ ["3.6 Renewing oil seal for electric drive motor", page 102](#)

3.2 General description - electric drive motor

The electric drive motor - V141- -1- is located between the combustion engine and the gearbox.

It acts directly on the input shaft and has the following functions:

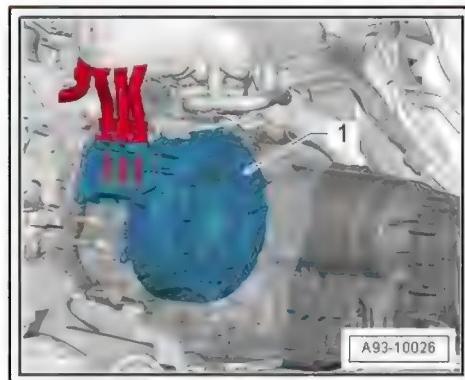
- ◆ A drive motor to propel the vehicle with electric power only
- ◆ A generator to supply the electrical system with power and charge the drive battery - A2- .
- ◆ A starter to start the combustion engine.

The disengagement clutch in the electric drive motor - V141- disengages the engine from the electric drive motor - V141- . The disengagement clutch is also designated "disengagement clutch F", or just "clutch F".

The "disengagement clutch F" in the electric drive motor - V141- cannot be renewed separately; there is no provision for opening and dismantling the electric drive motor - V141- .

Driving off in 1st gear is controlled by clutch B in the gearbox (also referred to as "drive-away clutch B").

Potential equalisation line on electric drive motor - V141- ⇒ Electrical system, hybrid; Rep. gr. 93 ; Potential equalisation lines .



3.3 Performing basic setting for electric drive motor

Special tools and workshop equipment required

- ◆ Vehicle diagnostic tester

Requirements

The basic setting for the electric drive motor - V141- must be performed after the following work

- When the electric drive motor - V141- has been renewed
- When the gearbox with electric drive motor - V141- has been renewed
- When the electric drive control unit - J841- has been renewed
 ⇒ Electrical system, hybrid; Rep. gr. 93 ; Power and control electronics for electric drive; Removing and installing power and control electronics for electric drive .

By performing the basic setting, the rotor position sensor in the electric drive motor - V141- is adapted and adjusted.

Procedure

- It is important to observe all test conditions and follow all instructions given by the vehicle diagnostic tester exactly.
- Using the diagnostic tester in Guided Fault Finding mode, go to Function/Component Selection and select the following menu items:
 - ◆ Body (Rep. Gr. 01; 27; 50 – 97)
 - ◆ Electrical system (Rep. Gr. 01; 27; 90 – 97)
 - ◆ 51 – Electric drive control unit | J841
 - ◆ 51 – Electric drive, functions
 - ◆ 51 – Basic setting (Rep. Gr. 93)

3.4 Removing and installing electric drive motor

Special tools and workshop equipment required

- ◆ Workshop hoist - VAS 6100-

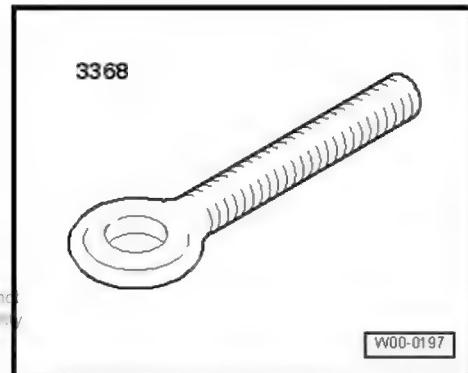


- ◆ Torque wrench - V.A.G 1331-





◆ Eye-head bolt - VAS 3368-



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◆ Multi-purpose tool - VW 771- adapter 40



◆ Washer, M8



WARNING

Working on vehicles with high-voltage wiring:

- *Do not support yourself or tools on high-voltage wiring or associated components --> this can damage the insulation.*
- *High-voltage wiring must not be excessively bent or kinked --> this can damage the insulation.*
- *The round high-voltage connectors are colour-coded with an external coloured ring and are provided with mechanical coding or guide lugs. It is important to observe this coding when joining up the round high-voltage connectors; otherwise the connectors can be damaged.*

Removing

The electric drive motor - V141- is a component of the gearbox, so the gearbox first has to be removed.

De-energising high-voltage system



WARNING

Observe general warning instructions for work on the high-voltage system => Electrical system, hybrid; Rep. gr. 93 ; General warning instructions for work on the high-voltage system .

The high-voltage system must be de-energised according to the Guided Fault Finding routine in the vehicle diagnostic tester , and ONLY by this method.



DANGER!

High voltage can cause fatal injury.

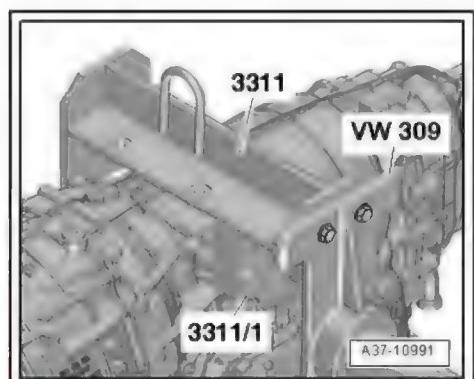
Danger of severe or fatal injuries from electric shock.

- ◆ The high-voltage system may only be de-energised by a suitably qualified person (Audi high-voltage technician).
- ◆ It must be definitely confirmed that the high-voltage system is de-energised. The system may only be de-energised using the vehicle diagnostic tester via "Guided Fault Finding".
- ◆ The qualified person (Audi high-voltage technician) confirms that the system is de-energised and uses the locking cap - T40262- to ensure that the system cannot be re-energised. As an additional precaution, the ignition key and the maintenance connector for high-voltage system - TW- are then stored in a safe place by the qualified person.
- ◆ The qualified person (Audi high-voltage technician) marks the vehicle by attaching the appropriate warning signs.



Note

- ◆ De-energising high-voltage system:
- ◆ Connect vehicle diagnostic tester.
- ◆ Select **Guided Fault Finding** mode.
- ◆ Using the **GoTo** button, select the following menu options in succession.
 - ◆ **Function/Component Selection**
 - ◆ **Body**
 - ◆ **Electrical system**
 - ◆ **Self-diagnosis compatible systems**
 - ◆ **8C - Hybrid battery management -J840**
 - ◆ **8C - Hybrid battery management, functions**
 - ◆ **51 - De-energise high-voltage system (Rep. Gr. 93)**
- Remove gearbox [⇒ page 41](#).
- Secure gearbox to engine and gearbox support - VAS 6095- [⇒ page 69](#).
- Remove flange shaft (left-side) [⇒ page 132](#).

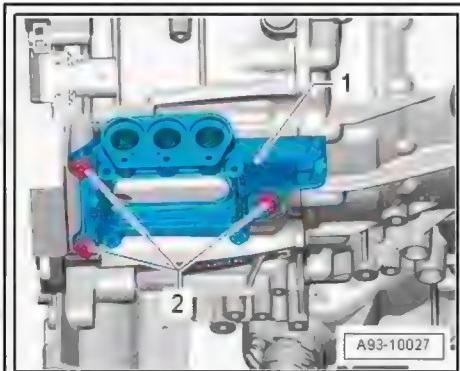




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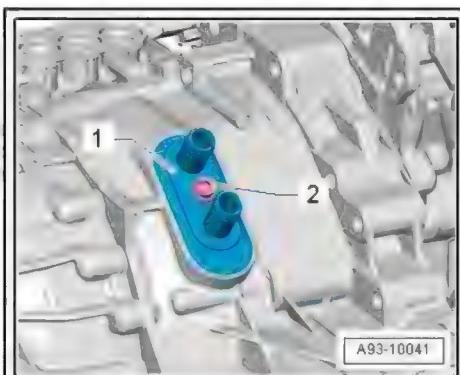
8-speed automatic gearbox 0BW hybrid, front-wheel drive - Edition 08.2017

- Remove bolts -2- and detach housing -1- of connection box for high-voltage wiring from gearbox.



- Remove bolt -2- and pry connection for coolant lines -1- off gearbox housing.

Protective caps for high-voltage connections must only be fitted when the electric drive motor - V141 - has been removed. The protective cap - 3 - for the connection to the gearbox can only be fitted when the electric drive motor - V141 - has been removed.



- Cover high-voltage connections -1- and cooling connections -2- on electric drive motor - V141- with protective caps.



For illustration purposes shown with the electric drive motor - V141 - removed. The protective cap - 3 - for the connection to the gearbox can only be fitted when the electric drive motor - V141 - has been removed.

- Turn gearbox so that electric drive motor - V141- faces vertically upwards.

Preparing transport and lifting equipment:

- Assemble eye-head bolt - VAS 3368- with adapter 40 of multi-purpose tool - VW 771- and washer (M8) -1-.
- Maximum depth for screwing in: dimension x = 8 mm

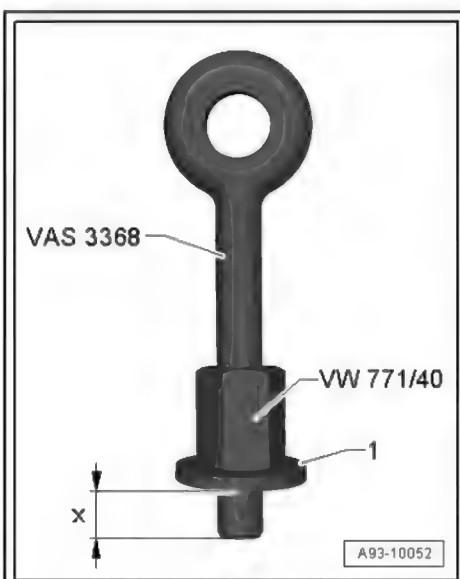
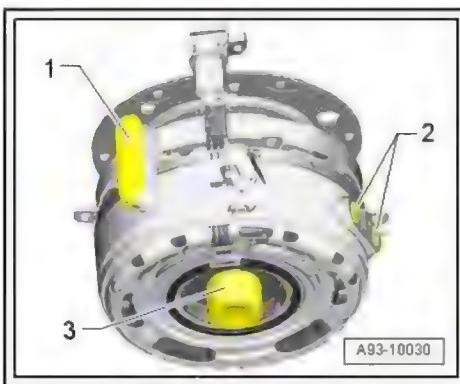


Caution

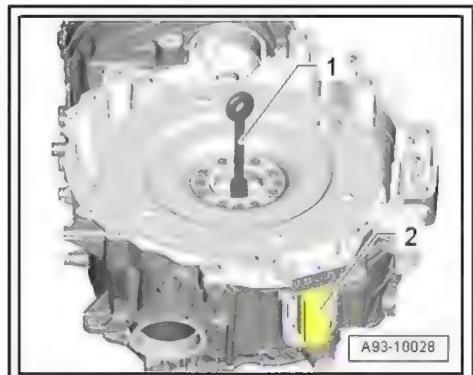
Risk of damaging damper module in electric drive motor - V141-

If the eye-head bolt - VAS 3368- with adapter 40 of multi-purpose tool - VW 771- is screwed in deeper than 8 mm, the damper module in the electric drive motor - V141- will be damaged.

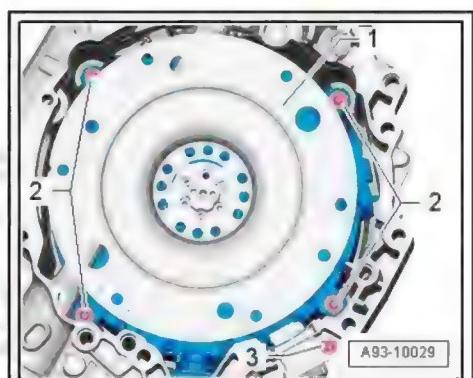
The electric drive motor - V141- must be renewed if the damper module in the electric drive motor - V141- is damaged.



- Attach eye-head bolt - VAS 3368- with adapter 40 of multi-purpose tool - VW 771- and washer (M8) -1- at top of electric drive motor - V141- .



- Unscrew bolt -3- at drive motor rotor position sender 1 - G713- .
- Remove bolts -2- on electric drive motor - V141- -1-.



- Carefully lift electric drive motor - V141- vertically out of gearbox using workshop hoist - VAS 6100- .

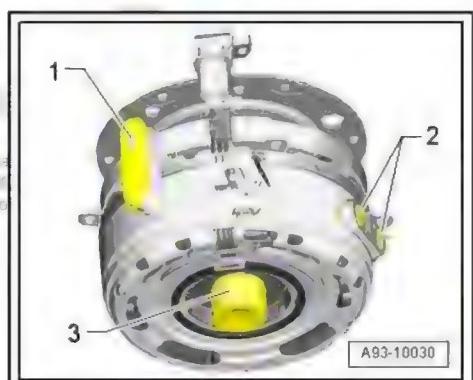


Caution

Risk of damage to electric drive motor - V141-

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- ◆ The drive motor rotor position sender 1 - G713- and the high-voltage connection with protective cap -1- must not be allowed to knock against the gearbox housing when the motor is being lifted out.



- Make sure that no coolant is allowed to enter the opening for the input shaft; cover the opening if necessary.
 - Make sure that all protective caps are fitted.
- 1 - Protective cap for high-voltage connections
2 - Protective caps for coolant connections
3 - Protective cap for connection to gearbox
- Carefully set down electric drive motor - V141- .

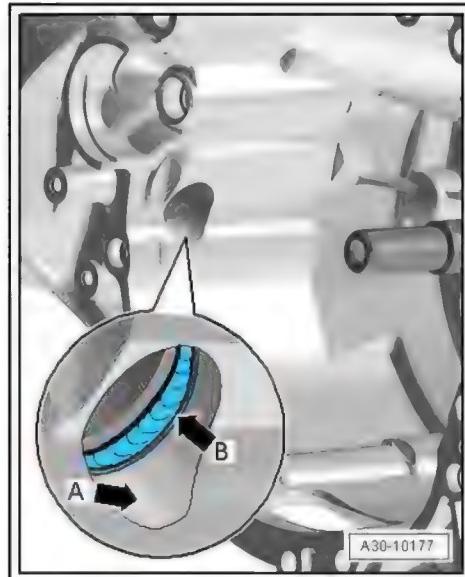
Installing

- Installation is carried out in reverse sequence; note the following:
- Thoroughly clean area of gearbox housing leading to differential -arrow A-, and oil seal -arrow B-.

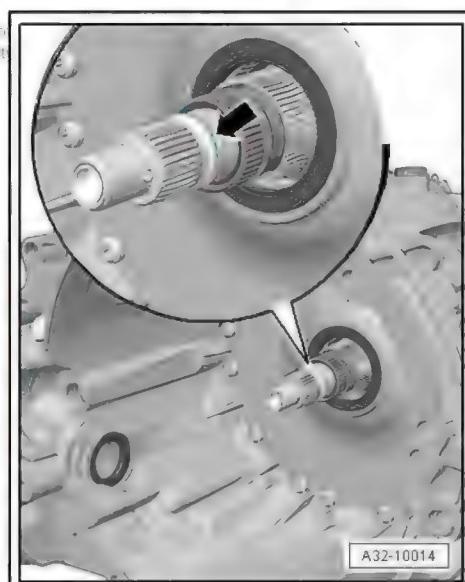


If oil seal between differential and gearbox housing -arrow B- is damaged, it must be renewed [⇒ page 104](#).

- Pack space between sealing lip and dust lip half-full with sealing grease - G 052 128 A1- .



- Renew O-ring -arrow- on input shaft.
- Check oil seal for electric drive motor - V141- for damage and renew if necessary [⇒ page 102](#) .
- Check hub of electric drive motor - V141- [⇒ page 102](#) .



- Assemble eye-head bolt - VAS 3368- with adapter 40 of multi-purpose tool - VW 771- and washer (M8) -1-.
- Maximum depth for screwing in: dimension x = 8 mm

Installing a new electric drive motor - V141-

A new electric drive motor - V141- is delivered in a special transport pallet.

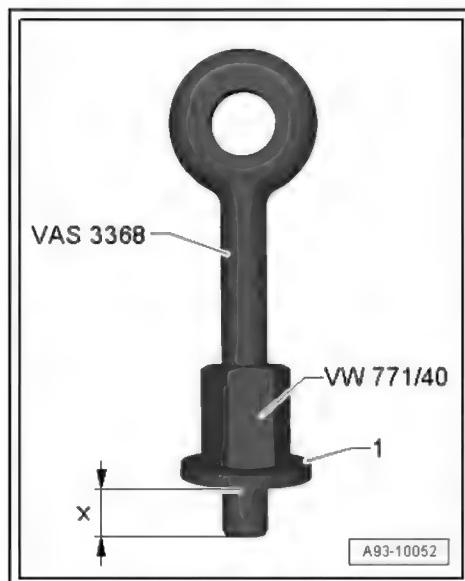


Caution

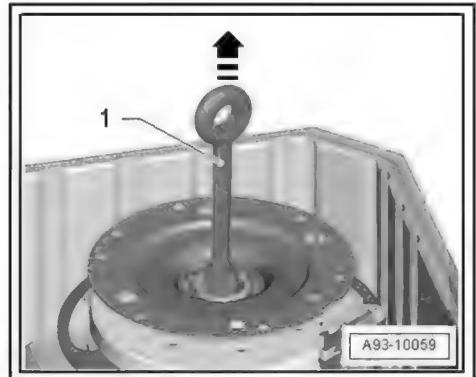
Risk of damaging damper module in electric drive motor - V141-

If the eye-head bolt - VAS 3368- with adapter 40 of multi-purpose tool - VW 771- is screwed in deeper than 8 mm, the damper module in the electric drive motor - V141- will be damaged.

The electric drive motor - V141- must be renewed if the damper module in the electric drive motor - V141- is damaged.

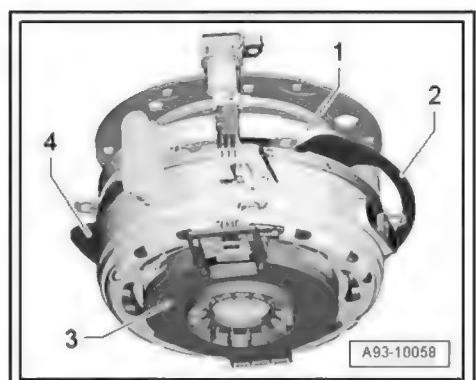


- Attach eye-head bolt - VAS 3368- with adapter 40 of multi-purpose tool - VW 771- and washer (M8) -1- at top of electric drive motor - V141- .



- Lift electric drive motor - V141- out of transport pallet using workshop hoist - VAS 6100- .
- Detach base plate -3- and support -2- for torsion damper from electric drive motor - V141- -1-.
- Continue with instructions for installing a previously removed electric drive motor - V141- [⇒ page 101](#) .

Installing a previously removed electric drive motor - V141-



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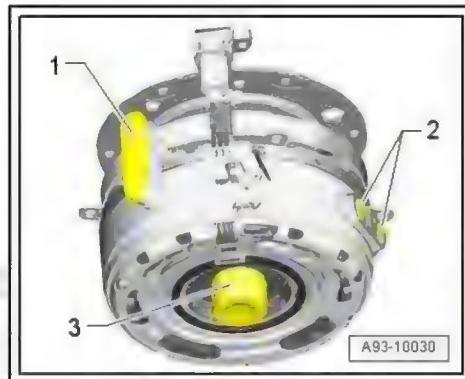
- Remove protective cap on connection for gearbox -3-.



Caution

Risk of damage to electric drive motor - V141-

- ◆ *The drive motor rotor position sender 1 - G713- and the high-voltage connection with protective cap -1- must not be allowed to knock against the gearbox housing when the motor is being lowered into the gearbox.*



- Using workshop hoist - V141- , lower electric drive motor - VAS 6100- vertically into gearbox housing until four lugs on electric drive motor - V141- rest against contact surfaces in gearbox housing. Align axial bores in lugs and gearbox housing.



Caution

Risk of damage to electric drive motor - V141-

- ◆ *When guiding the electric drive motor - V141- onto the gearbox input shaft and the hollow oil pump shaft, the splines on the shafts may be directly opposite each other, so that the motor cannot be fully located at the first attempt.*
- ◆ *If the electric drive motor - V141- is lowered further it can then drop down suddenly as the splines come into engagement, thus allowing the lugs to impact against the surfaces in the gearbox housing.*
- ◆ *This must be avoided, otherwise the lugs and the roller bearings can be damaged.*

Important! The information contained in this document is not intended to be a substitute for the instructions in the appropriate Audi Approved Dealer manual. It is intended to provide general guidance only. The correctness of information in this document is not guaranteed by Audi AG.

- Install flange shaft (left-side) [⇒ page 132](#) .
- Install gearbox [⇒ page 54](#) .

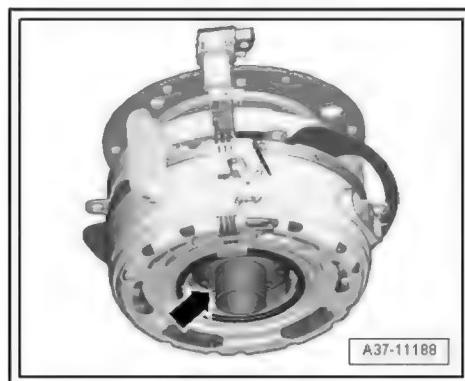
3.5 Checking hub of electric drive motor

- Check hub -arrow- of electric drive motor - V141- for scoring.



Note

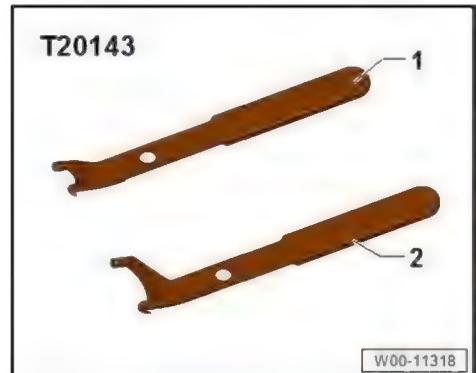
The electric drive motor - V141- must be renewed as a complete unit if it is damaged or defective.



3.6 Renewing oil seal for electric drive motor

Special tools and workshop equipment required

◆ Extractor tool - T20143/2-



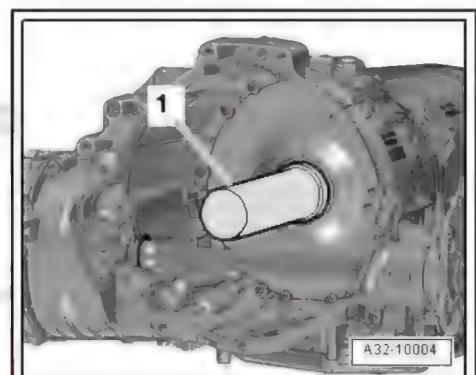
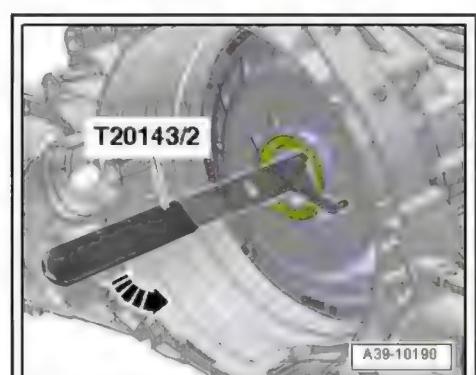
◆ Thrust piece - T40240-



Procedure

- Remove electric drive motor - V141- [⇒ page 95](#) .
- Pry out oil seal for electric drive motor - V141- using extractor hook -T20143/2- .
- Lightly lubricate outer circumference and sealing lips of oil seal with ATF.
- Installation position: open side of oil seal points towards gearbox

- Drive in oil seal for electric drive motor - V141- using thrust piece - T40240- until thrust piece -1- reaches stop.
- Install electric drive motor - V141- [⇒ page 95](#) .





39 – Final drive - differential

1 Final drive

⇒ “1.1 Exploded view - final drive”, page 104

⇒ “1.2 Removing and installing gearbox end cover”, page 107

1.1 Exploded view - final drive

⇒ “1.1.1 Exploded view - front final drive”, page 104

⇒ “1.1.2 Exploded view - gearbox end cover”, page 106

1.1.1 Exploded view - front final drive

1 - Electric drive motor - V141-

- Removing and installing
⇒ Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor; Removing and installing electric drive motor

2 - O-ring

- For input shaft
- Renew

3 - Oil seal

- For electric drive motor - V141-
- Renewing ⇒ Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor; Exploded view - electric drive motor

4 - Oil seal

- For flange shaft (left-side)
- Between final drive and gearbox housing
- ⇒ “3.2 Renewing oil seal (left-side)”, page 125

5 - Shim

- Behind tapered roller bearing outer race

6 - Tapered roller bearing outer race

7 - Bolt

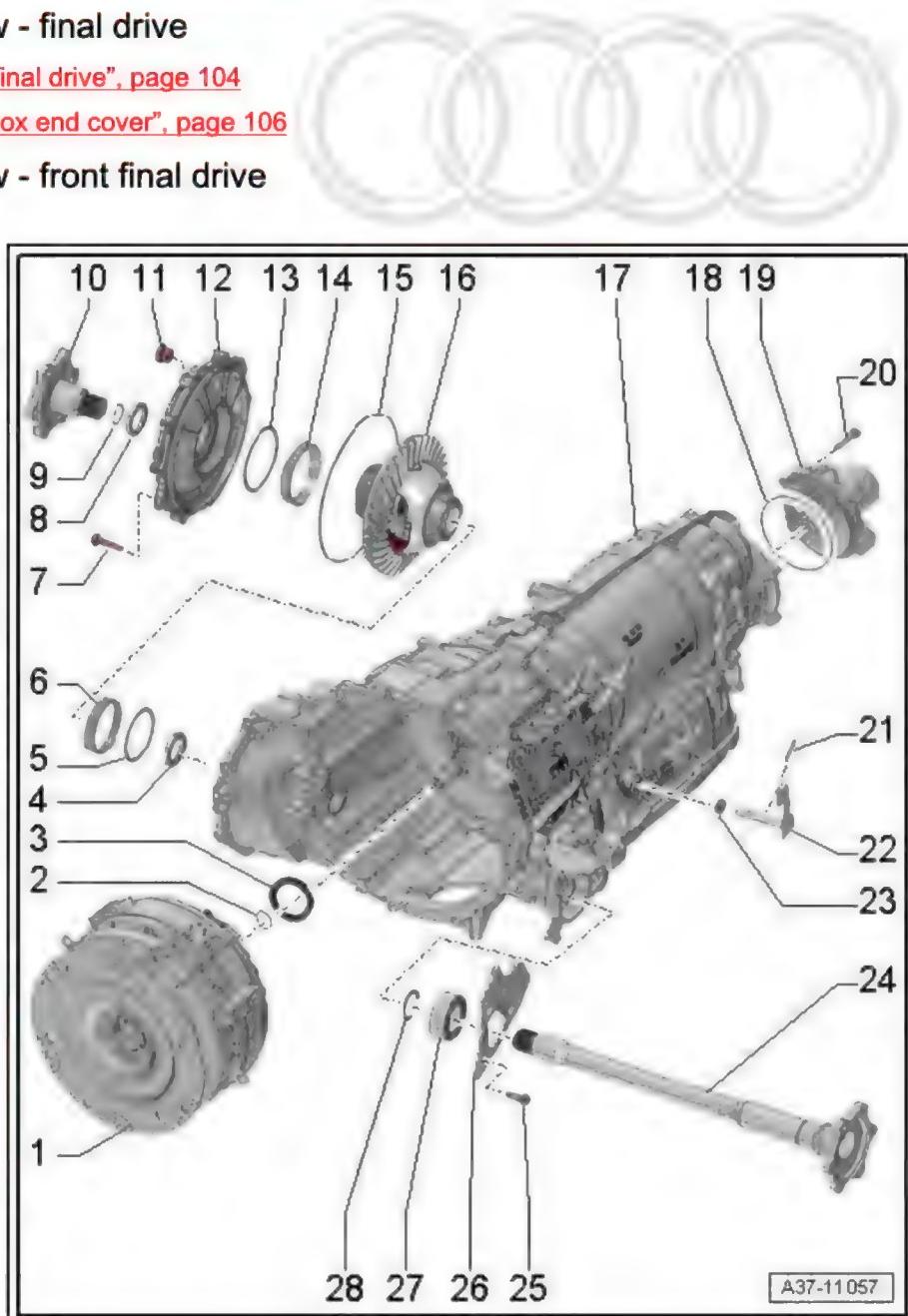
- 11x
- Tightening torque and sequence ⇒ page 106

8 - Oil seal

- For flange shaft (right-side)
- ⇒ “3.3 Renewing oil seal (right-side)”, page 129

9 - Circlip

- Renew



10 - Flange shaft (right-side)

- [⇒ "4.2 Removing and installing flange shaft \(right-side\)", page 133](#)

11 - Plug

- For inspection and filler hole
- For gear oil in front final drive
- Tightening torque [⇒ Item 5 \(page 111\)](#)

12 - Cover

- For front final drive
- Pay attention to dowel sleeves
- Removing and installing [⇒ page 130](#)

13 - Shim

- Behind tapered roller bearing outer race

14 - Tapered roller bearing outer race

15 - O-ring

- On cover for front final drive
- Renew
- [⇒ "3.4 Renewing O-ring on cover for front final drive", page 130](#)

16 - Differential

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17 - Gearbox

18 - O-ring

- Renew
- Lubricate with gear oil

19 - Gearbox end cover

- [⇒ "1.2 Removing and installing gearbox end cover", page 107](#)

20 - Bolt

- Renew
- Tightening torque and sequence [⇒ page 107](#)

21 - Roll pin

- Removing and installing [⇒ page 38](#)

22 - Gearbox selector lever

- Removing and installing [⇒ page 38](#)

23 - Oil seal

- For gearbox selector lever
- [⇒ "1.13 Renewing selector shaft oil seal", page 38](#)

24 - Flange shaft (left-side)

- [⇒ "4.1 Removing and installing flange shaft \(left-side\)", page 132](#)

25 - Bolt

- Renew
- 9 Nm + 60°

26 - Mounting bracket for flange shaft (left-side)

- Secured to flange shaft together with bearing [⇒ Item 27 \(page 105\)](#) via retaining clip
[⇒ Item 28 \(page 106\)](#)
- If wear is visible, renew mounting bracket and ball bearing for flange shaft (left-side).

27 - Ball bearing

- For flange shaft (left-side)
- [⇒ "4.3 Renewing ball bearing for flange shaft \(left-side\)", page 136](#)



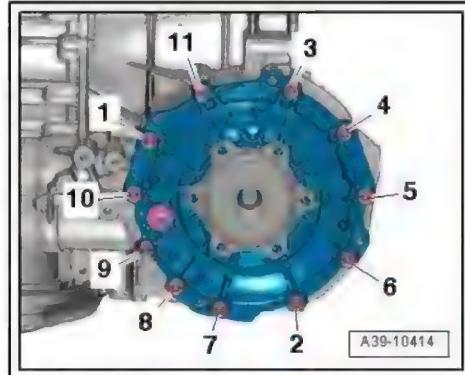
28 - Retaining clip

- For ball bearing on flange shaft (left-side)
- Renew

Cover for front final drive - tightening torque and sequence

- Tighten bolts in 2 stages in the sequence shown:

Stage	Bolts	Tightening torque
1.	-1- and -6-	3 Nm
2.	-1 ... 11-	27 Nm



1.1.2 Exploded view - gearbox end cover

1 - O-ring

- Renew
- Lubricate with gear oil

2 - Plug

- For inspection and filler hole
- For gear oil in transfer box
- Tightening torque
[⇒ Item 3 \(page 111\)](#)

3 - Gearbox end cover

- [⇒ "1.2 Removing and installing gearbox end cover", page 107](#)

4 - Vibration damper

5 - Bolt

- 22 Nm

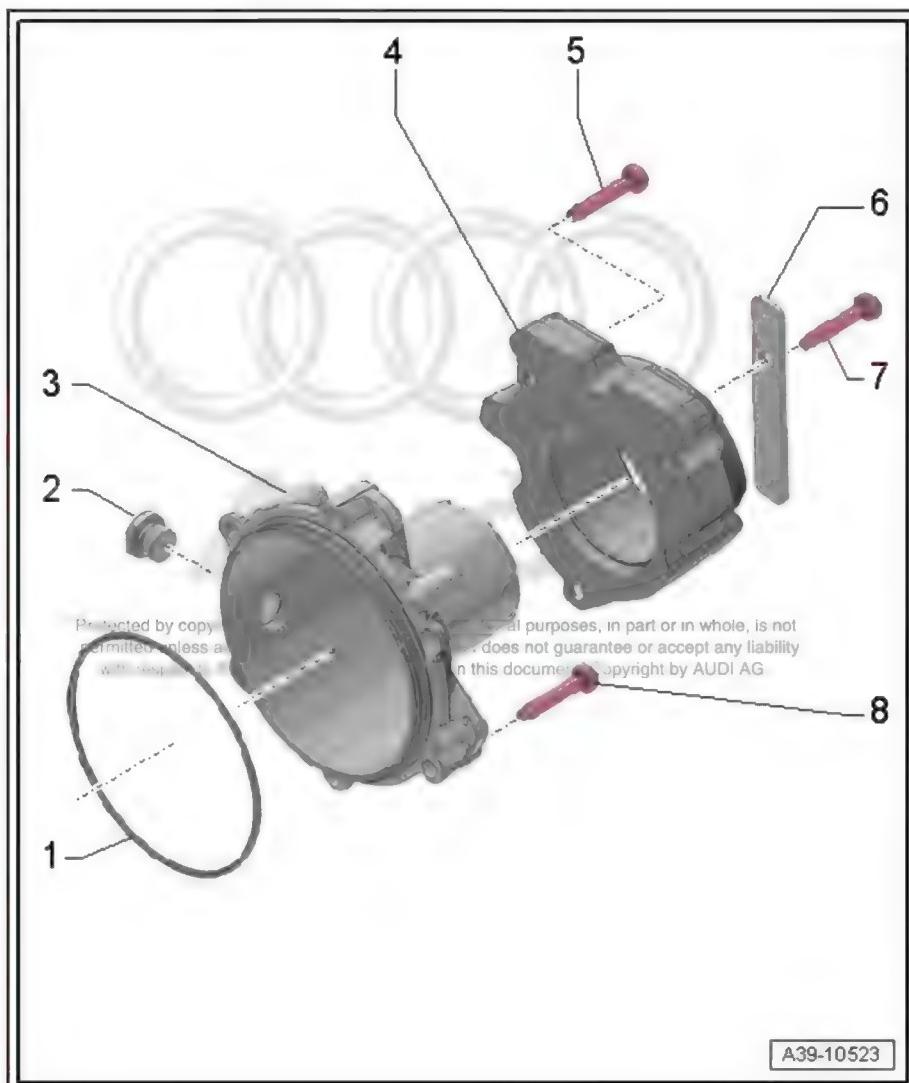
6 - Retainer

7 - Bolt

- 22 Nm

8 - Bolt

- Renew
- Tightening torque and sequence [⇒ page 107](#)



Gearbox end cover - tightening torque and sequence

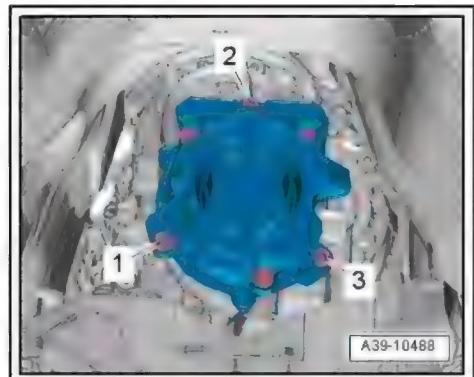


Note

Renew bolts for gearbox end cover.

- Tighten bolts in 3 stages in the sequence shown:

Stage	Bolts	Tightening torque/angle specification
1.	-1, 2, 3-	3 Nm
2.	-1, 2, 3-	10 Nm
3.	-1, 2, 3-	Turn 90° further



1.2 Removing and installing gearbox end cover

Special tools and workshop equipment required

- ◆ Gearbox support - 3282-



- ◆ Engine and gearbox jack - V.A.G 1383 A-



Removing



Note

- ◆ **Rules for cleanliness when working on the automatic gearbox** [⇒ page 8](#)
 - ◆ **General repair instructions** [⇒ page 9](#).
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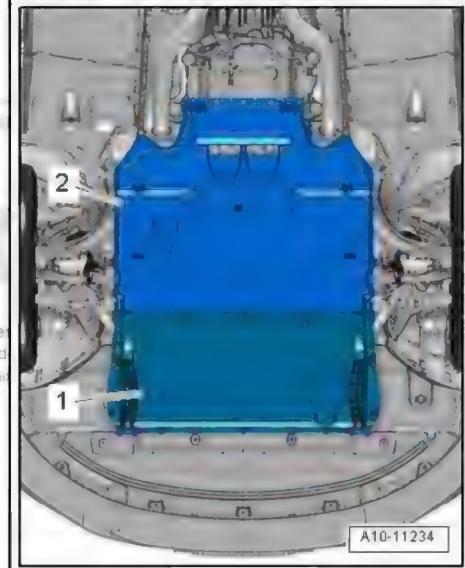
Caution

Risk of damage to gearbox

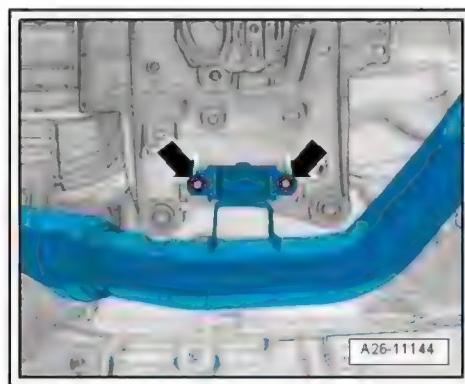
- ◆ *The engine must not be run and the vehicle must not be towed without gear oil.*

- Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .

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- Remove bolts -arrows- for front exhaust pipe.





Caution

There is a risk of damage to the gearbox oil pan.

- ◆ *Do not place gearbox down on the gearbox oil pan.*

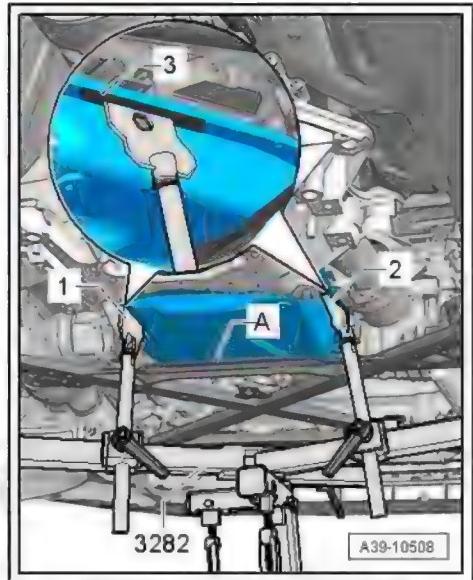
- Attach two flat support mountings -1- and -2- to gearbox support - 3282- .
- Set up gearbox support - 3282- on engine and gearbox jack - V.A.G 1383 A- .
- Support gearbox at bolted surface of gearbox oil pan as shown in illustration, using rubber packing -3- on each side.
- Raise gearbox slightly using engine and gearbox jack - V.A.G 1383 A- .



WARNING

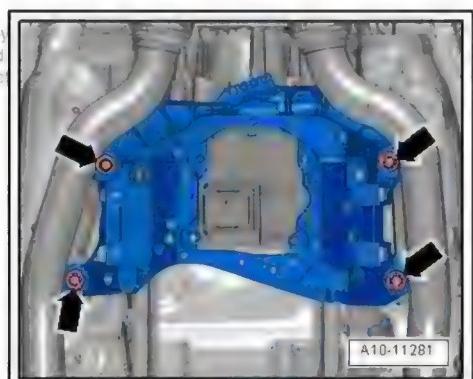
Risk of accident.

- ◆ *Engine and gearbox jack - V.A.G 1383 A- must remain in position when work is being carried out and must not be left unattended.*

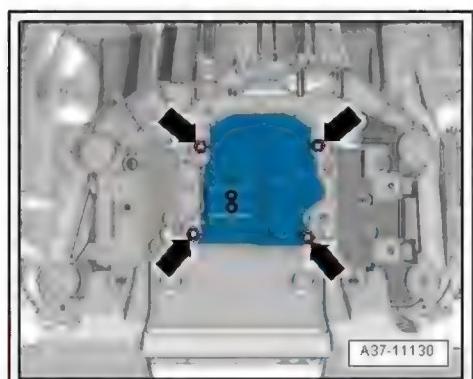


- Remove bolts -arrows- for tunnel cross member.

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- Unscrew nuts -arrows- and remove tunnel cross member.
- Drain off gear oil in transfer box [⇒ page 121](#) .





- Remove bolts -1, 2, 3- and detach gearbox end cover with vibration damper.

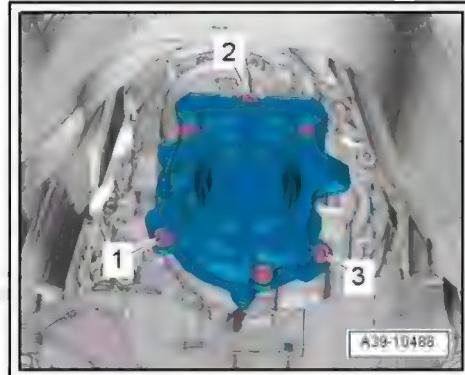
Installing

Installation is carried out in reverse sequence; note the following:



Note

- ◆ *Renew O-ring for gearbox end cover.*
 - ◆ *Renew bolts for gearbox end cover.*
- Tighten bolts for gearbox end cover [⇒ page 107](#).
 - Fill up gear oil in transfer box [⇒ page 121](#)



Tightening torques

- ◆ [⇒ "3.1 Exploded view - assembly mountings", page 64](#)

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2 Gear oil

⇒ "2.1 Overview of fitting locations - drain and inspection plugs",
page 111

⇒ "2.2 Checking gear oil level", page 112

⇒ "2.3 Draining and filling gear oil", page 115

2.1 Overview of fitting locations - drain and inspection plugs

1 - Drain plug

- For ATF in gearbox
- Renew
- 12 Nm

2 - Drain plug

- For gear oil in transfer box
- Renew
- 12 Nm

3 - Plug

- For inspection and filler hole
- For gear oil in transfer box
- Renew
- 27 Nm

4 - Plug

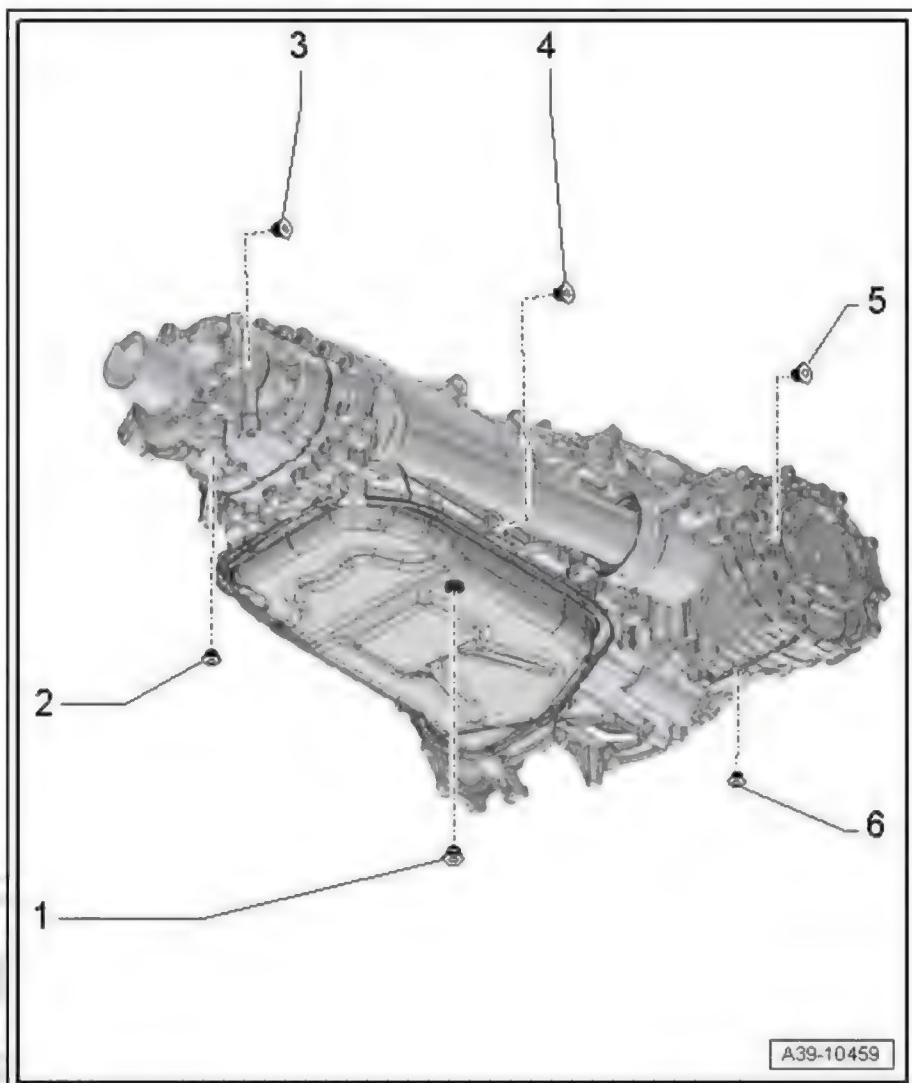
- For inspection and filler hole
- For ATF in gearbox
- Renew
- 30 Nm

5 - Plug

- For inspection and filler hole
- For gear oil in front final drive
- Renew
- 27 Nm

6 - Drain plug

- For gear oil in front final drive
- Renew
- 8 Nm



A39-10459



Measure length of breather pipe on adapter for oil filling - VAS 6262 A- and shorten if necessary.

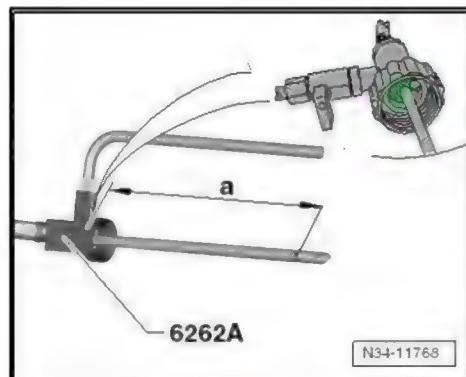
To ensure that breather pipe of adapter for oil filling -VAS 6262 A- does not make contact with bottom of oil container, breather pipe must be shortened to dimension -a-.

- Dimension -a- = 210 mm

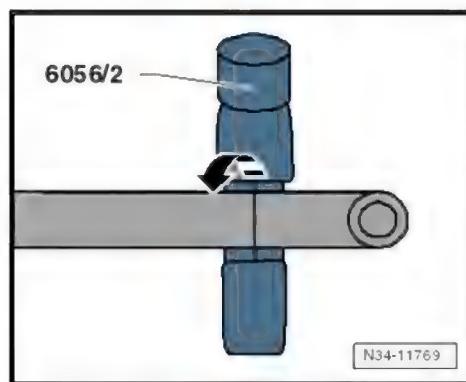


Note

Dimension -a- is measured from stem (green area in magnified view) of adapter for oil filling -VAS 6262 A- .



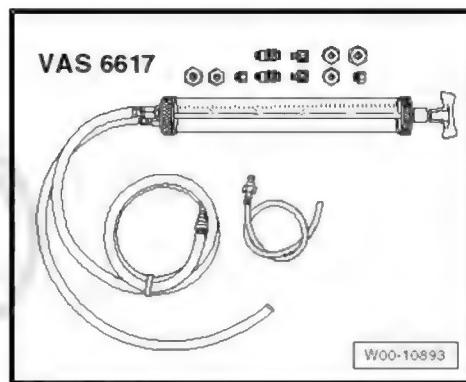
- Mark length on breather pipe and shorten breather pipe using pipe cutter -6056/2- .
- Clean adapter for oil filling - VAS 6262 A- .



2.2 Checking gear oil level

Special tools and workshop equipment required

- ◆ Hand pump for filling gearbox - VAS 6617-



- ◆ Used oil collection and extraction unit - VAS 6622A-

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- ◆ Safety goggles

Test conditions

- Gear oil about 20 °C (room temperature)
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- The vehicle must be stationary with the engine switched off for at least 15 minutes to allow the oil level to stabilise.
- Gear oil level in front final drive and transfer box must be checked. Gear oil level has been topped up correctly only when both fill levels are correct.
- Gearbox is in position "P".
- Parking brake button must be pulled up to apply the electro-mechanical parking brake.

Procedure



Note

- ◆ [⇒ "3.3 General repair instructions", page 9](#)
- ◆ [⇒ "3.1 Rules for cleanliness", page 8](#)
- ◆ **The prescribed oil level must be adhered to exactly; the gearbox reacts very sensitively to overfilling.**
- ◆ **Renew plug for inspection and filler hole.**
- ◆ **Always adhere to waste disposal regulations.**

- Remove bolts -arrows- and detach heat shield (right-side) -1-.
- Place used oil collection and extraction unit - VAS 6622A- below gearbox.

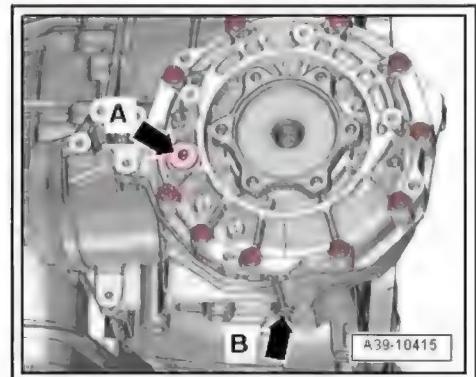
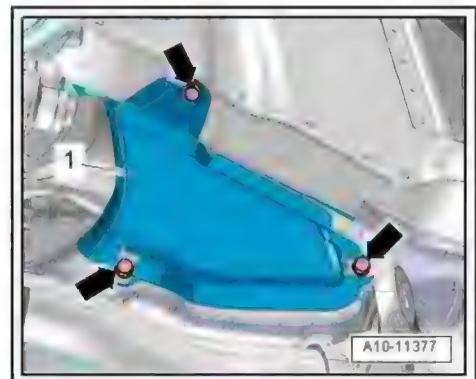


WARNING

Risk of eye injury.

- ◆ Put on safety goggles.

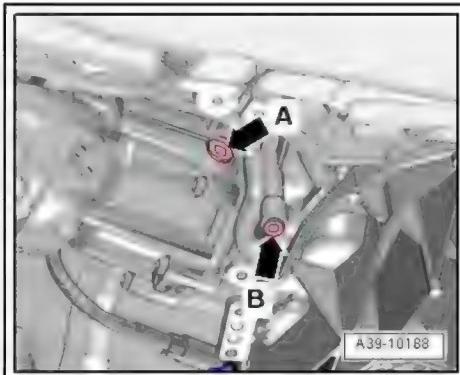
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- Unscrew plug for inspection and filler hole -arrow A- on front final drive.
- Specification: The oil level is correct when the front final drive is filled up to the bottom lip of the inspection and filler hole.
- Allow excess gear oil to drain off.
- Remove tunnel cross member [⇒ page 64](#).



- Unscrew plug for inspection and filler hole -arrow A- on gearbox end cover.
- Specification: Oil level is correct when oil in transfer box is up to lower edge of inspection and filler hole.
- Allow excess gear oil to drain off.

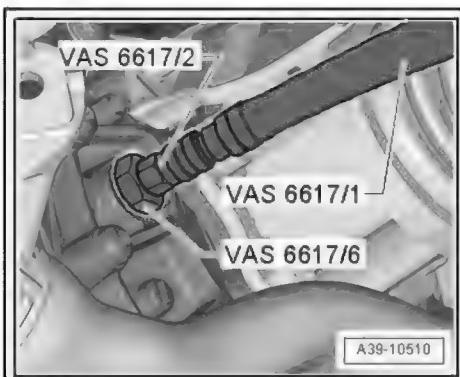


If oil level in front final drive is not up to bottom lip of filler hole:

- Screw adapter -VAS 6617/6- with adapter -VAS 6617/2- hand-tight into inspection and filler hole for front final drive.
- Connect hand pump for filling gearbox - VAS 6617- and fill up front final drive with gear oil.
- Gear oil specifications ⇒ Electronic parts catalogue
- Wait for 5 minutes.



The fill-up period of at least 5 minutes is necessary so that the internal oil level can be balanced out between the differential and the baffle chamber.



- Then detach adapter - VAS 6617/6- from gearbox and allow excess gear oil to drain off.

- Specification: The oil level is correct when the front final drive is filled up to the bottom lip of the inspection and filler hole. Top up with gear oil once again if necessary.

If oil level in transfer box is not up to bottom lip of filler hole:

- Screw adapter -VAS 6617/6- with adapter -VAS 6617/2- hand-tight into inspection and filler hole in gearbox end cover.
- Connect hand pump for filling gearbox - VAS 6617- and fill up transfer box with gear oil.
- Gear oil specifications ⇒ Electronic parts catalogue
- Wait for 5 minutes.

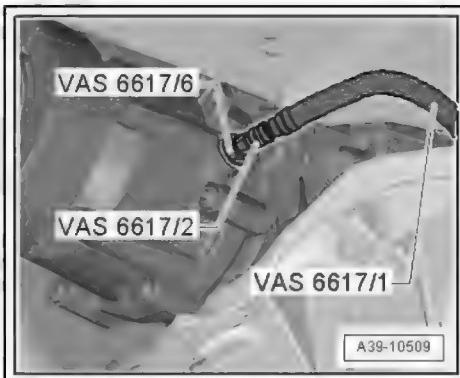
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◆ *The transfer box incorporates a number of internal oil chambers. These must be filled evenly.*

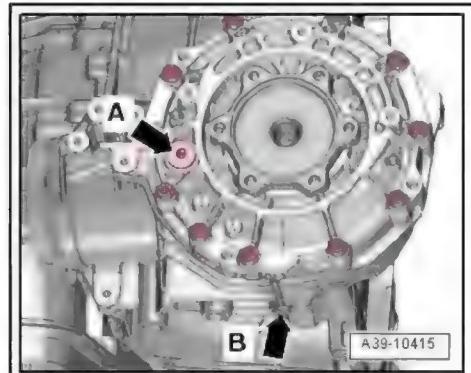
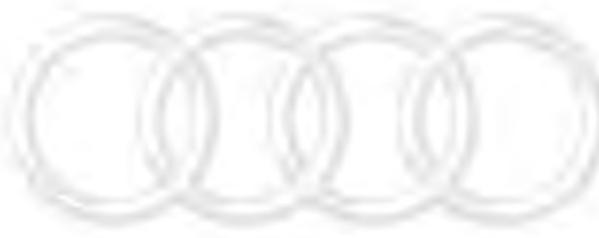
◆ *It is important to wait for at least 5 minutes so that the internal oil level in the system has time to equalise.*

- Then detach adapter - VAS 6617/6- from gearbox and allow excess gear oil to drain off.
- Specification: Oil level is correct when oil in transfer box is up to lower edge of filler hole. Top up with gear oil once again if necessary.



If gear oil level in front final drive and transfer box is correct:

- Tighten new plug -arrow A- on front final drive.



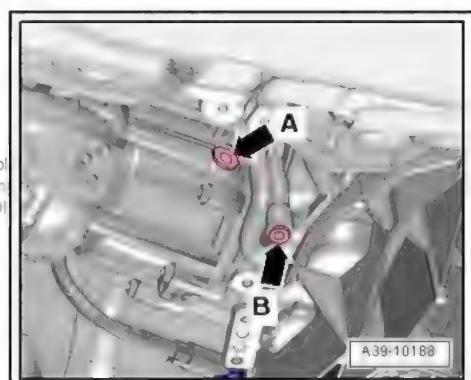
- Tighten new plug -arrow A- on gearbox end cover.

Tightening torques

- ◆ [⇒ "2.1 Overview of fitting locations - drain and inspection plugs", page 111](#)

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- ◆ [⇒ "3.1 Exploded view assembly mountings", page 64](#)



2.3 Draining and filling gear oil

[⇒ "2.3.1 Draining and filling gear oil, front final drive and transfer box", page 115](#)

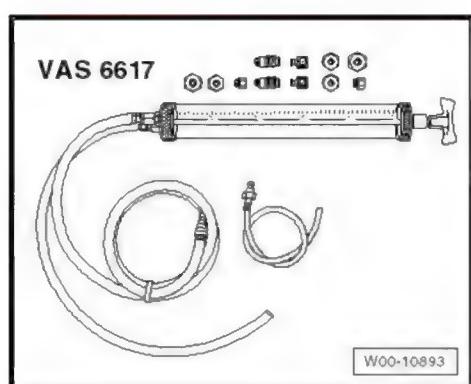
[⇒ "2.3.2 Draining and filling gear oil, front final drive", page 118](#)

[⇒ "2.3.3 Draining and filling gear oil, transfer box", page 121](#)

2.3.1 Draining and filling gear oil, front final drive and transfer box

Special tools and workshop equipment required

- ◆ Hand pump for filling gearbox - VAS 6617-





- ◆ Used oil collection and extraction unit - VAS 6622A-



W00-11526

- ◆ Safety goggles

Draining

- Engine not running.
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Gearbox is in position "P".
- Parking brake button must be pulled up to apply the electro-mechanical parking brake.

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Note

- ◆ [⇒ "3.3 General repair instructions", page 9](#)
- ◆ [⇒ "3.1 Rules for cleanliness", page 8](#)
- ◆ Always adhere to waste disposal regulations.
- ◆ Renew drain plugs with seals.

- Place used oil collection and extraction unit - VAS 6622A- below gearbox.



WARNING

Risk of eye injury.

- ◆ Put on safety goggles.

- Unscrew drain plug -arrow B- on front final drive and drain off gear oil.

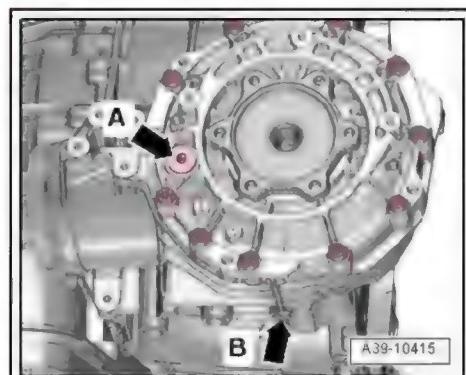


Caution

Risk of damage to gearbox

- ◆ The engine must not be started when there is no more gear oil in the front final drive.

- Tighten new drain plug on front final drive -arrow B-.



A39-10415

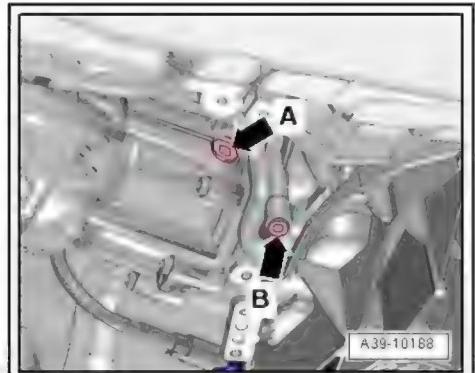
- Place used oil collection and extraction unit - VAS 6622A- below gearbox.



WARNING

Risk of eye injury.

- ◆ Put on safety goggles.



- Unscrew drain plug -arrow B- on centre differential housing and drain off gear oil.



Caution

Risk of damage to gearbox

- ◆ The engine must not be started when there is no gear oil in the transfer box.

- Tighten new drain plug on centre differential housing -arrow B-.

Filling up and adjusting oil level

- Gear oil about 20 °C (room temperature)
- Place used oil collection and extraction unit - VAS 6622A- below gearbox.

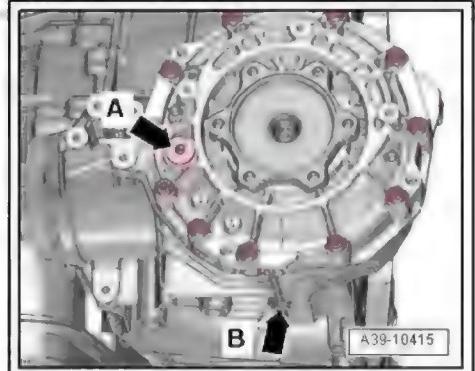
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WARNING

Risk of eye injury.

- ◆ Put on safety goggles.



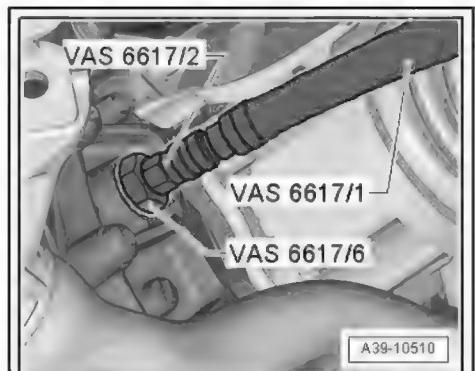
- Remove plug -arrow A- on front final drive.

- Screw adapter -VAS 6617/6- with adapter -VAS 6617/2- hand-tight into inspection and filler hole for front final drive.
- Connect hand pump for filling gearbox - VAS 6617- and fill up front final drive with approx. 1.0 ltr. of gear oil.
- Gear oil specifications ⇒ Electronic parts catalogue
- Wait for 5 minutes.



Note

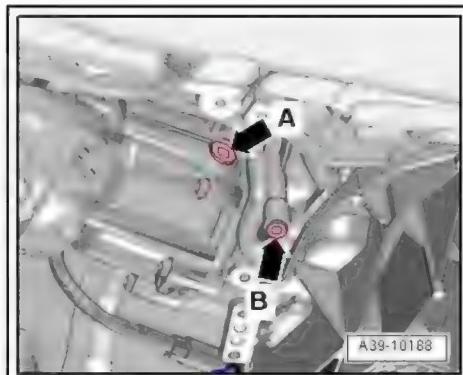
It is necessary to wait for at least 5 minutes to allow the internal oil level to balance out between the differential and the baffle chamber.



- Then detach -VAS 6617/6- from gearbox and allow excess gear oil to drain off.
- Re-install used screw plug.



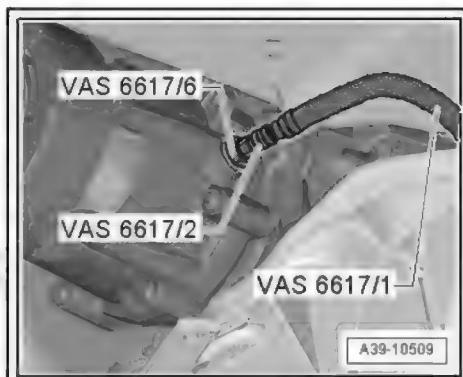
- Remove plug -arrow A- on housing for centre differential.



- Screw adapter -VAS 6617/6- with adapter -VAS 6617/2- hand-tight into inspection and filler hole for transfer box.
- Connect hand pump for filling gearbox - VAS 6617- and fill up transfer box with approx. 1.0 ltr. of gear oil.
- Gear oil specifications ⇒ Electronic parts catalogue
- Wait for 5 minutes.

Note

- ◆ *The transfer box incorporates a number of internal oil chambers. These must be filled evenly.*
- ◆ *It is necessary to wait for at least 5 minutes to allow the internal oil level to balance out between the centre differential and the baffle chamber.*



- Then detach -VAS 6617/6- from gearbox and allow excess gear oil to drain off.
- Re-install used screw plug.

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Note

The oil filling will be distributed evenly when the vehicle is driven.

- Check gear oil level and top up as required [⇒ page 112](#).

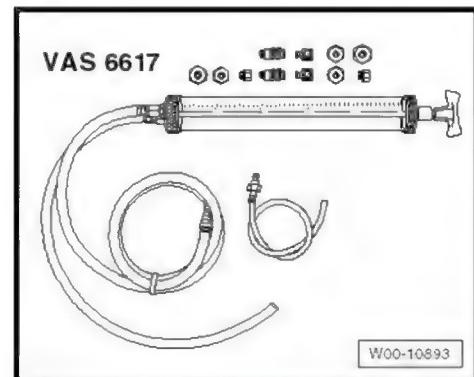
Tightening torques

- ◆ [⇒ "2.1 Overview of fitting locations - drain and inspection plugs", page 111](#)

2.3.2 Draining and filling gear oil, front final drive

Special tools and workshop equipment required

- ◆ Hand pump for filling gearbox - VAS 6617-



- ◆ Used oil collection and extraction unit - VAS 6622A-



- ◆ Safety goggles

Draining

- Engine not running.
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Gear oil about 20 °C (room temperature)



Note

- ◆ General repair instructions [⇒ page 9](#).
- ◆ Rules for cleanliness when working on the automatic gearbox [⇒ page 8](#)
- ◆ Always adhere to waste disposal regulations.
- ◆ Renew drain plug with seal.
- ◆ Renew plug for inspection and filler hole.

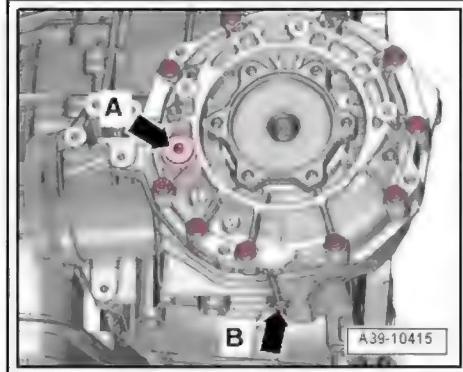


- Place used oil collection and extraction unit - VAS 6622A- below gearbox.

**WARNING**

Risk of eye injury.

- ◆ Put on safety goggles.



- Unscrew drain plug -arrow B- on front final drive and drain off gear oil.

**Caution**

Risk of damage to gearbox

- ◆ The engine must not be started when there is no more gear oil in the front final drive.

- Tighten new drain plug -arrow B- on front final drive.

Filling

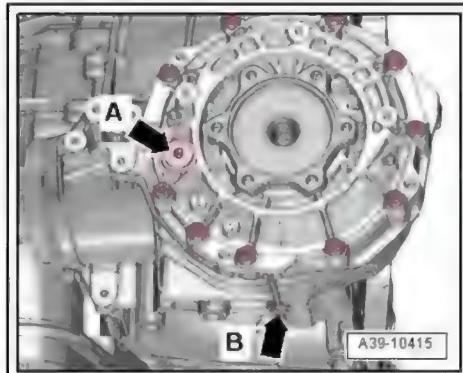
- Gear oil about 20 °C (room temperature)
- Place used oil collection and extraction unit - VAS 6622A- below gearbox.

**WARNING**

Risk of eye injury.

- ◆ Put on safety goggles.

- Unscrew plug for inspection and filler hole -arrow A- on front final drive.



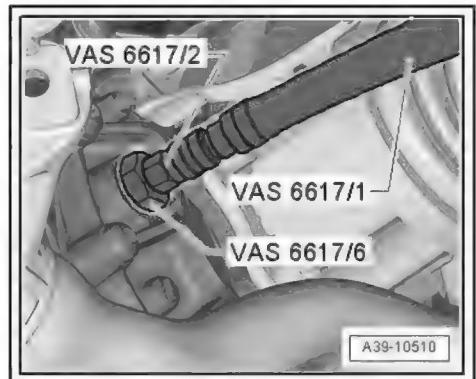
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- Screw adapter - VAS 6617/6- with adapter - VAS 6617/2- hand-tight into gearbox.
- Connect hand pump for gear oil - VAS 6617- and fill up front final drive with approx. 0.9 ltr. of gear oil.
- Gear oil specifications ⇒ Electronic parts catalogue
- Wait for 5 minutes.



Note

The fill-up period of at least 5 minutes is necessary so that the internal oil level can be balanced out between the differential and the baffle chamber.



- Then detach adapter - VAS 6617/6- from gearbox and allow excess gear oil to drain off.
- Specification: The oil level is correct when the front final drive is filled up to the bottom lip of the filler hole. Top up with gear oil once again if necessary.



Caution

Risk of damage to gearbox

After performing repair work, gear oil level in front final drive and transfer box must be checked. Gear oil level has been topped up correctly only when both fill levels are correct.

- Check gear oil level in transfer box
[⇒ "2.2 Checking gear oil level", page 112 .](#)

Tightening torques

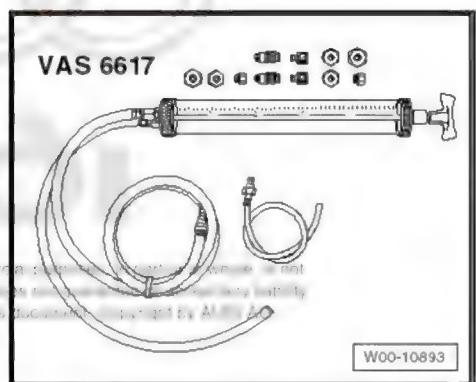
- ◆ [⇒ "2.1 Overview of fitting locations - drain and inspection plugs", page 111](#)

2.3.3 Draining and filling gear oil, transfer box

Special tools and workshop equipment required

- ◆ Hand pump for filling gearbox - VAS 6617-

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- ◆ Used oil collection and extraction unit - VAS 6622A-



- ◆ Safety goggles

Draining

- Engine not running.
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Gear oil about 20 °C (room temperature)



Note

Protect the environment from oil and oil residues by using a suitable oil disposal facility. Do not dispose of oil in drains, rivers, lakes or oceans. Audi AG does not accept any liability with regard to the costs of environmental damage resulting from the disposal of oil.

- ◆ General repair instructions [⇒ page 9](#).

- ◆ Rules for cleanliness when working on the automatic gearbox [⇒ page 8](#)

- ◆ Always adhere to waste disposal regulations.

- ◆ Renew drain plug with seal.

- ◆ Renew plug for inspection and filler hole.

- Remove tunnel cross member [⇒ page 64](#).

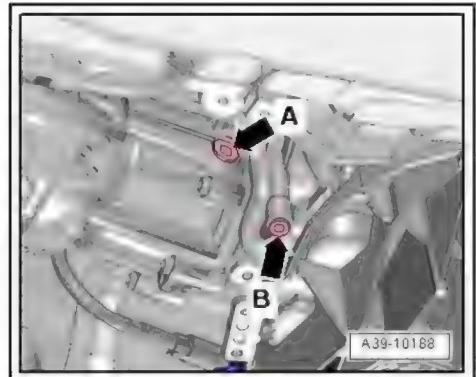
- Place used oil collection and extraction unit - VAS 6622A- below gearbox.



WARNING

Risk of eye injury.

- ◆ *Put on safety goggles.*



- Remove drain plug -arrow B- and allow gear oil to drain off.



Caution

Risk of damage to gearbox

- ◆ *The engine must not be started when there is no gear oil in the transfer box.*

- Tighten new drain plug -arrow B-.

Filling up and adjusting oil level

- Gear oil about 20 °C (room temperature)
- Place used oil collection and extraction unit - VAS 6622A- below gearbox.

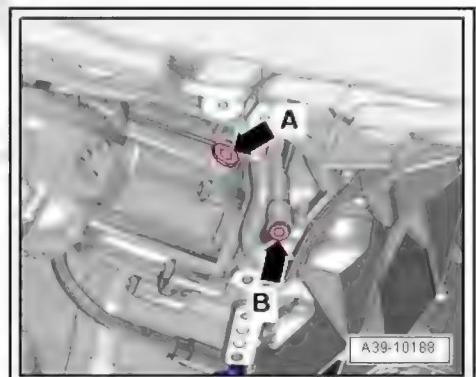


WARNING

Risk of eye injury.

- ◆ *Put on safety goggles.*

- Unscrew plug for inspection and filler hole -arrow A- on gearbox end cover.



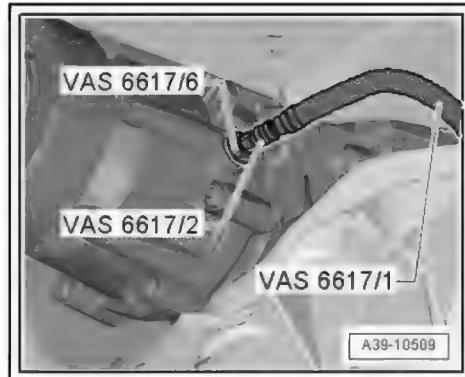
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- Screw adapter - VAS 6617/6- with adapter - VAS 6617/2- into inspection and filler hole on gearbox end cover.
- Connect hand pump for gear oil - VAS 6617- and fill up transfer box with approx. 0.8 ltr. of gear oil.
- Gear oil specifications ⇒ Electronic parts catalogue
- Wait for 5 minutes.

**Note**

- ◆ *The transfer box incorporates a number of internal oil chambers. These must be filled evenly.*
- ◆ *The filling period of at least 5 minutes is necessary so that the internal oil level in the system has time to equalise.*
- Then detach adapter - VAS 6617/6- from gearbox and allow excess gear oil to drain off.
- Specification: Oil level is correct when oil in transfer box is up to lower edge of filler hole. Top up with gear oil once again if necessary.

**Caution*****Risk of damage to gearbox***

After performing repair work, gear oil level in front final drive and transfer box must be checked. Gear oil level has been topped up correctly only when both fill levels are correct.

- Check gear oil level in front final drive ⇒ [page 112](#).

Tightening torques

- ◆ ⇒ [“2.1 Overview of fitting locations - drain and inspection plugs”, page 111](#)
- ◆ ⇒ [“3.1 Exploded view - assembly mountings”, page 64](#)

3 Oil seals

- ⇒ "3.1 Overview of fitting locations - oil seals", page 125
- ⇒ "3.2 Renewing oil seal (left-side)", page 125
- ⇒ "3.3 Renewing oil seal (right-side)", page 129
- ⇒ "3.4 Renewing O-ring on cover for front final drive", page 130

3.1 Overview of fitting locations - oil seals

1 - Oil seal

- For electric drive motor - V141-
- Renewing ⇒ Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor; Exploded view - electric drive motor

2 - Oil seal (left-side)

- For flange shaft
- Renewing ⇒ page 125

3 - O-ring

- On cover for front final drive
- Renewing ⇒ page 130

4 - Cover for front final drive

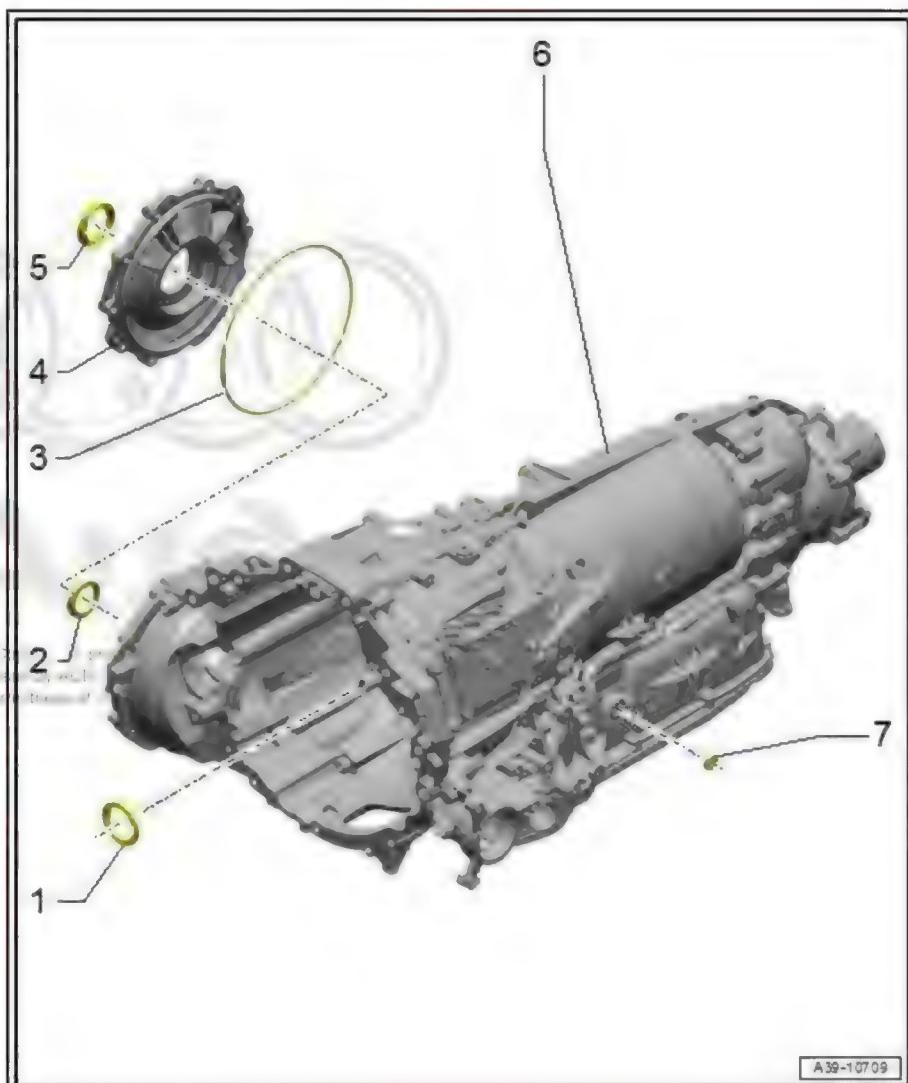
5 - Oil seal (right-side)

- For flange shaft
- Renewing ⇒ page 129

6 - Oil seal

- For selector shaft
- Renewing ⇒ page 38

7 - Gearbox



3.2 Renewing oil seal (left-side)



A defective oil seal allows gear oil to enter the torque converter bellhousing.

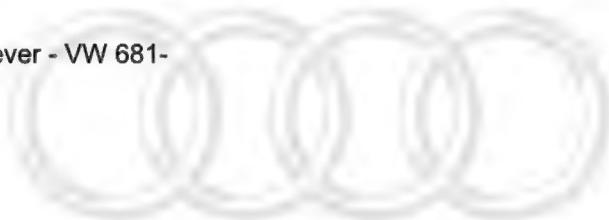
Special tools and workshop equipment required



Audi A6 2011 > , Audi A7 Sportback 2011 >

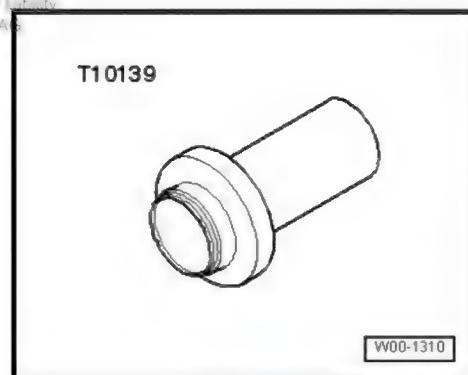
8-speed automatic gearbox 0BW hybrid, front-wheel drive - Edition 08.2017

- ◆ Extractor lever - VW 681-



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- ◆ Thrust piece - T10139-



- ◆ Used oil collection and extraction unit - VAS 6622A-



Procedure

- Gearbox must be removed and secured to engine/gearbox support [⇒ page 69](#).



Note

- ◆ *Rules for cleanliness when working on the automatic gearbox*
[⇒ page 8](#)
- ◆ *General repair instructions* [⇒ page 9](#).



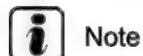
Caution

Risk of damage to gearbox

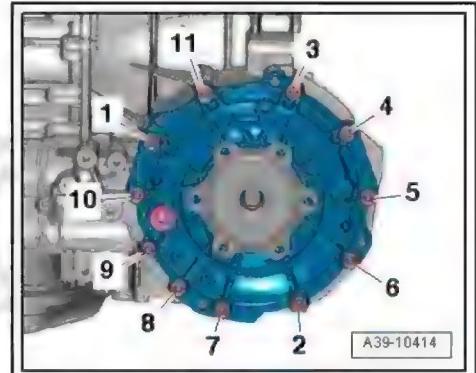
- ◆ *Do not set down the gearbox on the ATF oil pan.*

- Place used oil collection and extraction unit - VAS 6622A- below gearbox.

- Drain off gear oil in front final drive [⇒ page 118](#).
- Remove flange shaft (right-side) [⇒ page 133](#).
- Remove bolts securing cover for front final drive in the sequence -11 ... 1-.
- Remove cover for front final drive together with outer race for tapered roller bearing and shim.

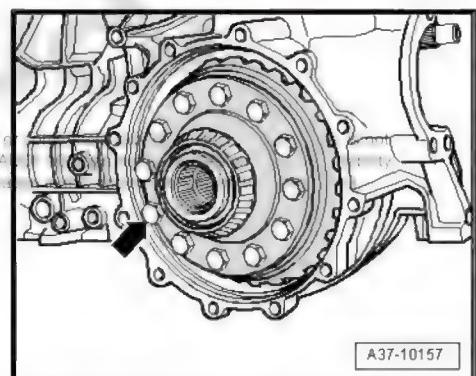


The thickness of the shim has been measured to fit; the shim must not be replaced with another shim of different thickness.



A39-10414

- Remove differential -arrow-.

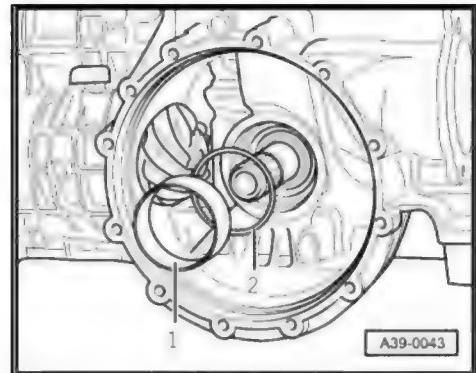


A37-10157

- Remove tapered roller bearing outer race -1- for differential and shim -2- (behind outer race) from gearbox housing by hand.



The thickness of the shim has been measured to fit; the shim must not be replaced with another shim of different thickness.



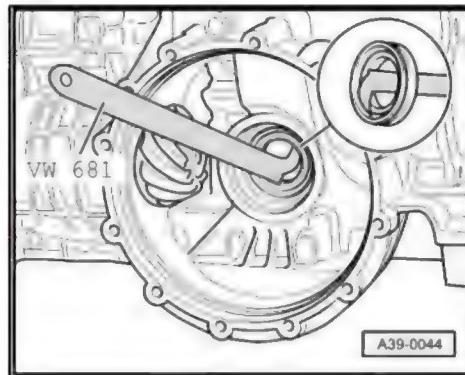
A39-0043



- Remove flange shaft (left-side) [⇒ page 132](#).
- Pull out oil seal.

**Note**

The oil seal extractor lever must be applied behind the two sealing lips of the oil seal. Do not position at outer circumference of oil seal as the contact surface in the gearbox housing could be damaged. Guide the lever carefully when removing the seal.

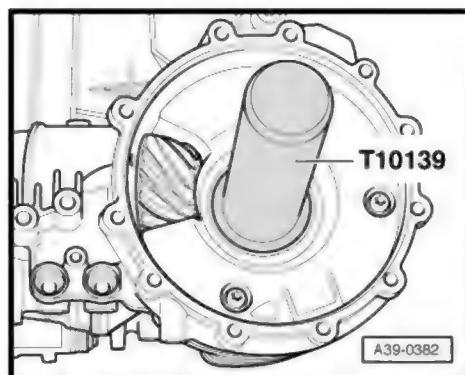


- Examine oil seal seat in gearbox housing for damage; reface surface if necessary.
- Lightly lubricate outer circumference and sealing lip of oil seal with gear oil.

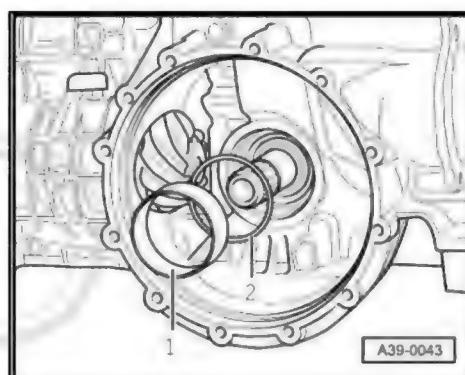
**Note**

Push oil seal onto thrust piece with the protruding sealing lip on the oil seal facing towards the tool.

- Drive in new oil seal as far as stop.



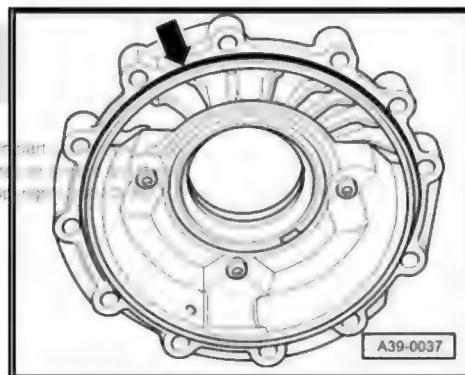
- Insert shim -2- and tapered roller bearing outer race -1- for differential onto stop in gearbox housing by hand.



- Renew O-ring -arrow-.
- Install differential in gearbox housing.

Note the following if the outer race for tapered roller bearing and the shim have dropped out of the front final drive cover:

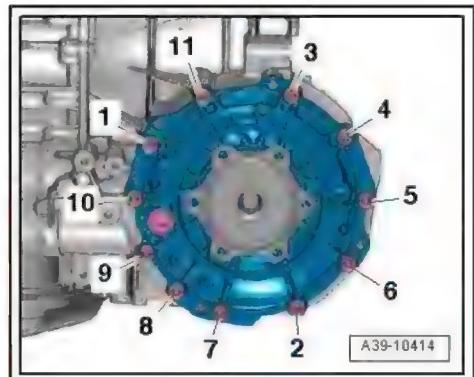
- Lubricate shim and outer race for tapered roller bearing with gear oil and insert in front final drive cover as far as the stop.



- Tighten bolts for front final drive cover [⇒ page 106](#) .
- Install flange shaft (left-side) [⇒ page 132](#) .
- Install flange shaft (right-side) [⇒ page 133](#) .
- Fill up gear oil in gearbox after repairs [⇒ page 118](#) .

Tightening torques

- ◆ [⇒ "1.1.1 Exploded view - front final drive", page 104](#)



3.3 Renewing oil seal (right-side)

Special tools and workshop equipment required

- ◆ Oil seal extractor lever - VW 681- or extractor tool -T20143/2-

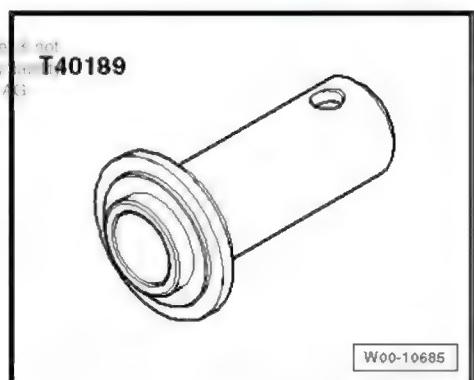


- ◆ Used oil collection and extraction unit - VAS 6622A-



- ◆ Thrust piece - T40189-

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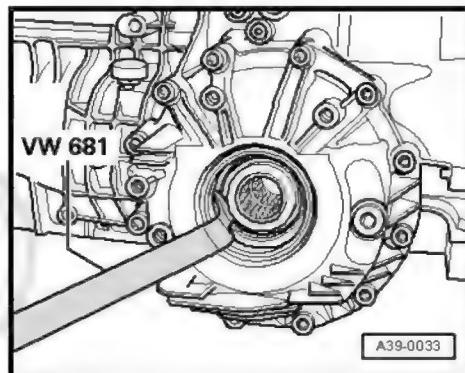
Procedure



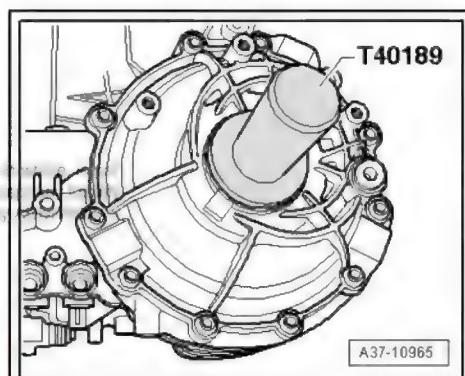
Note

- ◆ *Rules for cleanliness when working on the automatic gearbox* [⇒ page 8](#)
- ◆ *General repair instructions* [⇒ page 9](#).

- Place used oil collection and extraction unit - VAS 6622A- below gearbox.
- Remove flange shaft (right-side) [⇒ page 133](#).
- Pull out oil seal for flange shaft (right-side).
- Lubricate outer circumference of new oil seal with gear oil.
- Installation position: the open side of the oil seal should face the gearbox.



- Drive in new oil seal as far as stop. Make sure that oil seal always remains straight when driving in.
- Install flange shaft (right-side) [⇒ page 133](#).
- Fill up gear oil in gearbox after repairs [⇒ page 118](#).



3.4 Renewing O-ring on cover for front final drive



Note

- ◆ *Rules for cleanliness when working on the automatic gearbox* [⇒ page 8](#)
- ◆ *General repair instructions* [⇒ page 9](#).

Special tools and workshop equipment required

◆ Used oil collection and extraction unit - VAS 6622A-



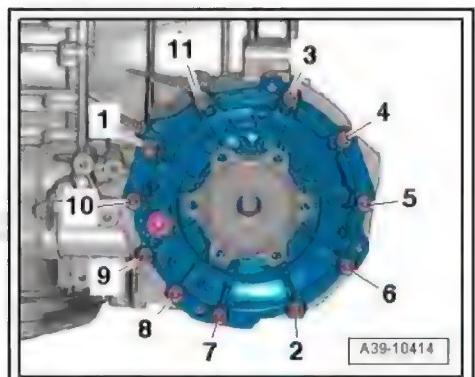
Procedure

- Place used oil collection and extraction unit - VAS 6622A- below gearbox.
- Remove flange shaft (right-side) [⇒ page 133](#).
- Remove bolts securing cover for front final drive in the sequence -11 ... 1-.
- Remove cover for front final drive together with outer race for tapered roller bearing and shim.



Note

The thickness of the shim has been measured to fit; the shim must not be replaced with another shim of different thickness.

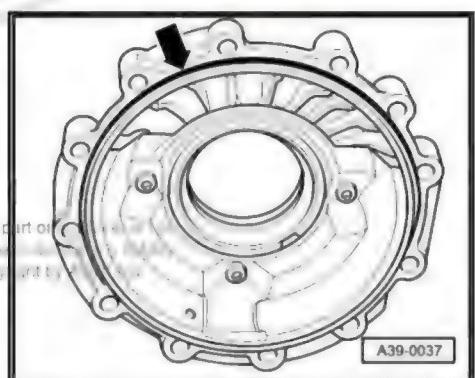


- Renew O-ring -arrow-.
- Install differential in gearbox housing.

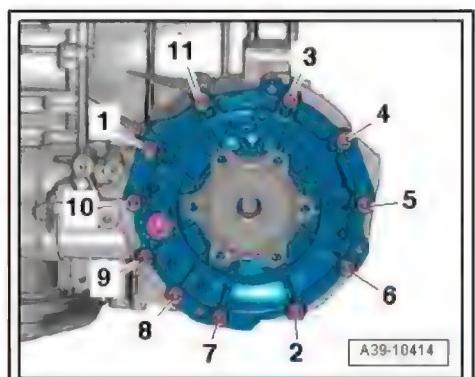
Note the following if the outer race for tapered roller bearing and the shim have dropped out of the front final drive cover:

- Lubricate shim and outer race for tapered roller bearing with gear oil and insert in front final drive cover as far as the stop.

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- Tighten bolts for front final drive cover [⇒ page 106](#).
- Install flange shaft (right-side) [⇒ page 133](#).
- Fill up gear oil in gearbox after repairs [⇒ page 118](#).



4 Differential

⇒ "4.1 Removing and installing flange shaft (left-side)",
page 132

⇒ "4.2 Removing and installing flange shaft (right-side)",
page 133

⇒ "4.3 Renewing ball bearing for flange shaft (left-side)",
page 136

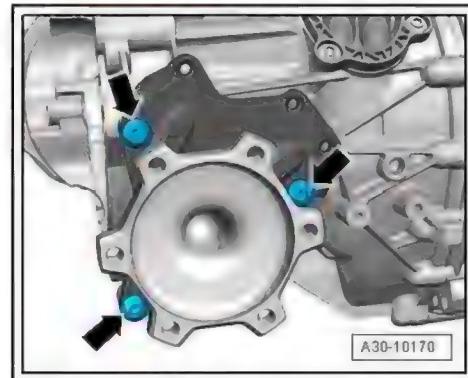
4.1 Removing and installing flange shaft (left-side)

Special tools and workshop equipment required

- ◆ Sealing grease - G 052 128 A1-

Removing

- Gearbox is secured to engine and gearbox support - VAS 6095- ⇒ page 69 .
- Tilt gearbox to rear on engine and gearbox support to prevent gear oil from escaping.
- Unscrew bolts -arrows- on mounting bracket for flange shaft.

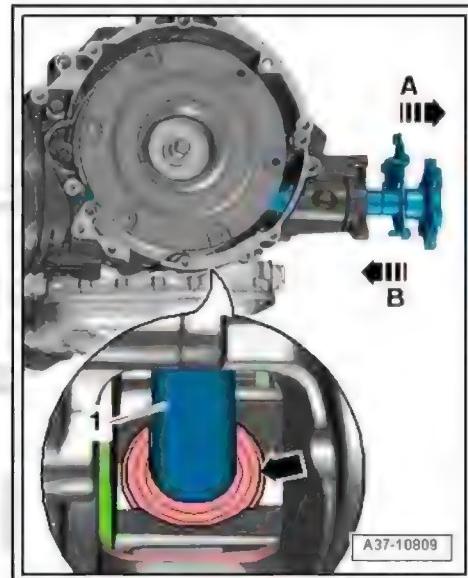


- Remove flange shaft (left-side) -1- from gearbox in direction of -arrow A-.



-Arrow B- can be disregarded.

- Remove electric drive motor - V141- ⇒ Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor; Removing and installing electric drive motor .



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Installing

Installation is carried out in reverse sequence; note the following:

- Thoroughly clean flange shaft (left-side), area of torque converter bellhousing leading to differential -arrow A-, and oil seal -arrow B-.

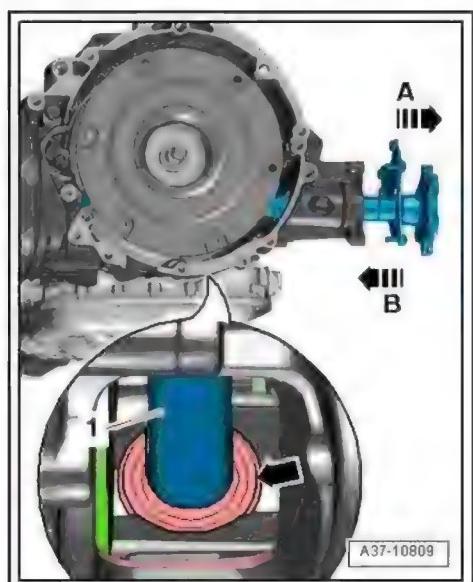
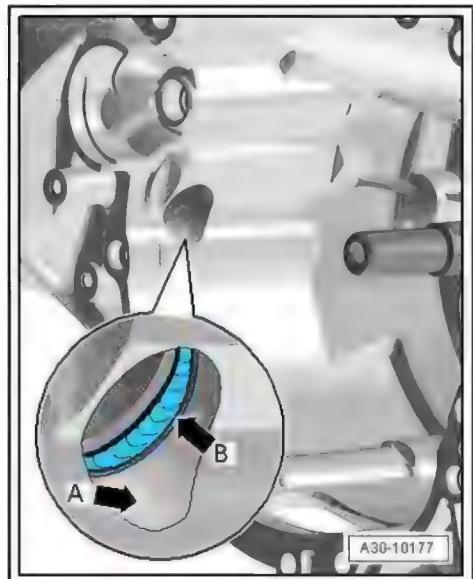


If oil seal between differential and gearbox housing -arrow B- is damaged, it must be renewed [⇒ page 104](#).

- Pack space between sealing lip and dust lip half-full with sealing grease - G 052 128 A1- .
- Install electric drive motor - V141- ⇒ Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor; Removing and installing electric drive motor .
- Slide flange shaft (left-side) -1- into gearbox in direction of -arrow B- (keep end of shaft centred while guiding it into oil seal on front final drive -arrow-).

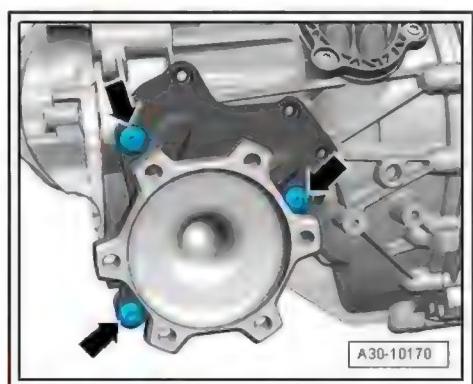


- ◆ *The splines -2- on the flange shaft will damage the oil seal between the final drive and the gearbox housing if you do not keep the flange shaft centred.*
- ◆ *If the oil seal is damaged, it must be renewed.*
- ◆ *-Arrow A- can be disregarded.*



- Tighten flange shaft mounting bracket -arrows-.
- After installing gearbox, check gear oil level in front final drive ⇒ ["2.2 Checking gear oil level", page 112](#) .

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Tightening torques
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◆ [⇒ "1.1.1 Exploded view - front final drive", page 104](#)



4.2 Removing and installing flange shaft (right-side)

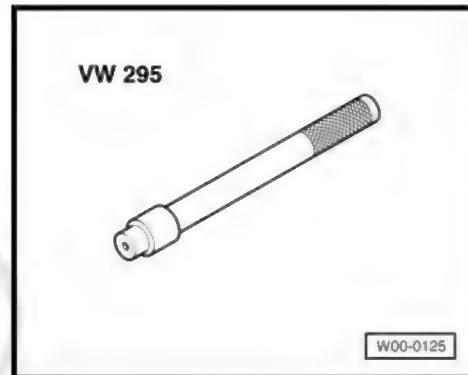
Special tools and workshop equipment required



Audi A6 2011 >, Audi A7 Sportback 2011 >

8-speed automatic gearbox 0BW hybrid, front-wheel drive - Edition 08.2017

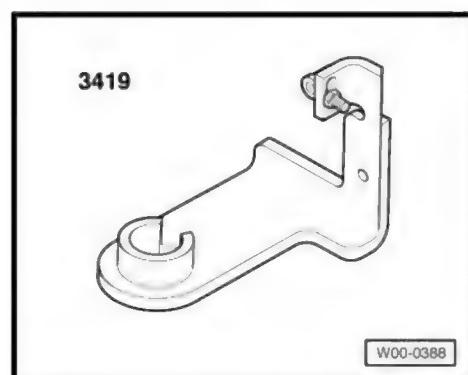
◆ Drift - VW 295-



◆ Multi-purpose tool - VW 771-



◆ Counterhold tool - 3419-



◆ Used oil collection and extraction unit - VAS 6622A-

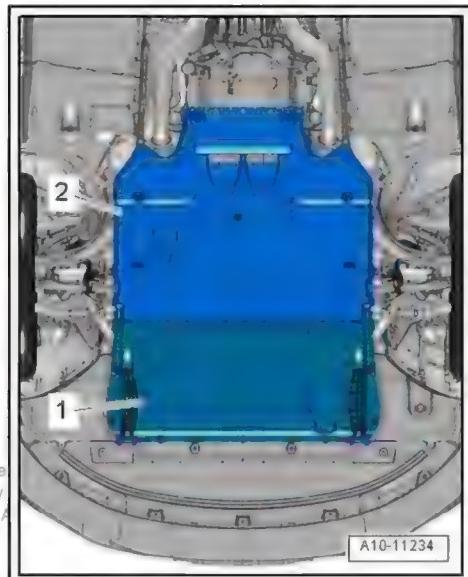


◆ Nuts M10 (2x)

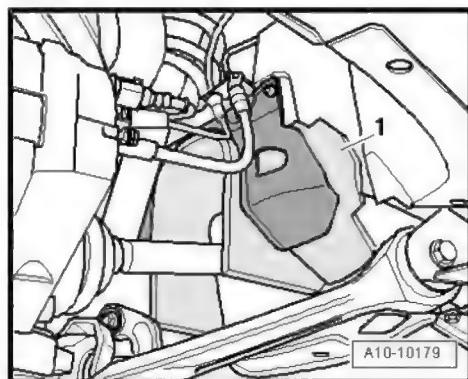
◆ Sealing grease - G 052 128 A1-

Removing

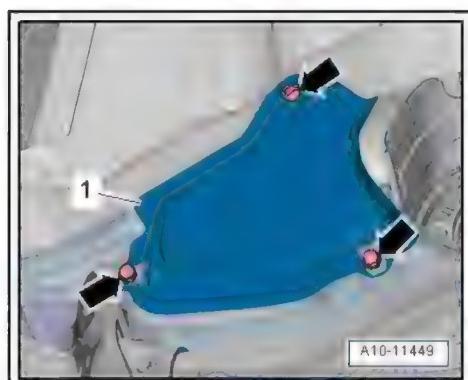
- Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Removing and installing noise insulation .
- Remove front wheel (right-side) ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres .



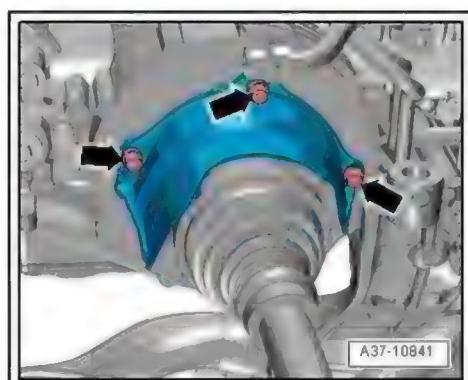
- Remove cover -1- for drive shaft (right-side) from wheel housing ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .



- Remove bolts -arrows- and detach heat shield (right-side) -1-.

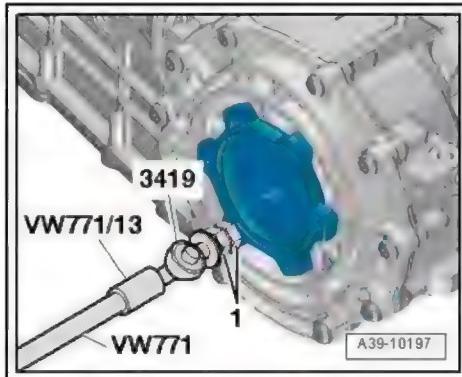


- Remove bolts -arrows- and detach heat shield for drive shaft (right-side).
- Unbolt drive shaft (right-side) from gearbox flange shaft and move it towards rear ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Removing and installing drive shaft .





- Place used oil collection and extraction unit - VAS 6622A- below gearbox.
- Screw eye bolt from counterhold tool - 3419- into one of the threaded holes on flange shaft (right-side) with 2 nuts M10 -item 1- attached.
- Attach multi-purpose tool - VW 771- with -VW 771/13- to eye bolt and pull flange shaft off gearbox.



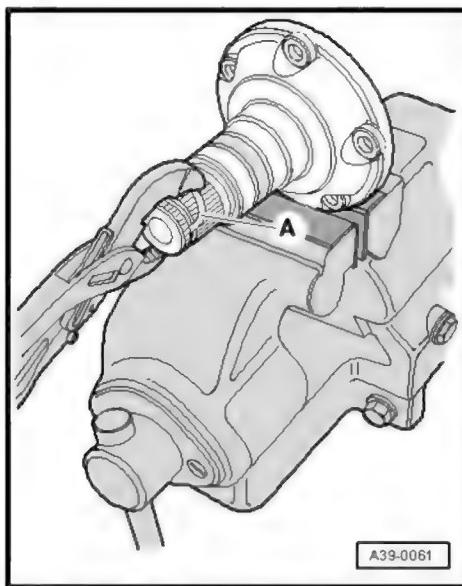
Installing

Installation is carried out in reverse sequence; note the following:



Renew circlip for flange shaft (right-side).

- Clamp flange shaft in vice, using jaw protectors. Use new circlip -A- to press old circlip out of groove in flange shaft.
- Check flange shaft oil seal (right-side) for damage and renew if necessary [⇒ page 129](#).
- Pack space between sealing lip and dust lip half-full with sealing grease - G 052 128 A1- .
- Drive in flange shaft (right-side) with drift - VW 295- .
- Check gear oil level and top up as required [⇒ page 112](#) .



Tightening torques

- ◆ ⇒ Running gear, axles, steering; Rep. gr. 40 ; Drive shaft; Exploded view - drive shaft
- ◆ Install cover for drive shaft (right-side) ⇒ General body repairs, exterior; Rep. gr. 66 ; Noise insulation; Exploded view - noise insulation .
- ◆ ⇒ Running gear, axles, steering; Rep. gr. 44 ; Wheels, tyres

4.3 Renewing ball bearing for flange shaft (left-side)

Special tools and workshop equipment required

- ◆ Thrust plate - VW 401-



◆ Thrust plate - VW 402-



◆ Press tool - VW 412-

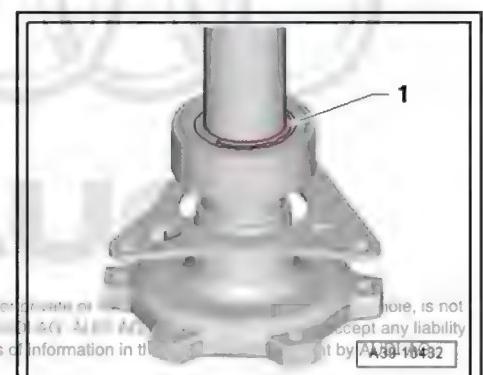


◆ Tube - VW 516-



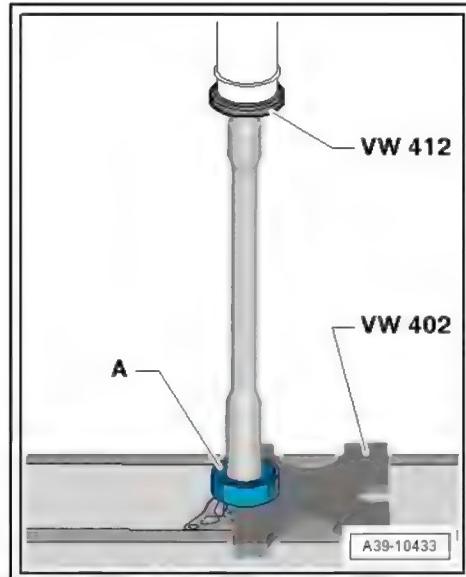
Procedure

- Remove flange shaft (left-side) [⇒ page 132](#).
- Remove circlip -1- from flange shaft.

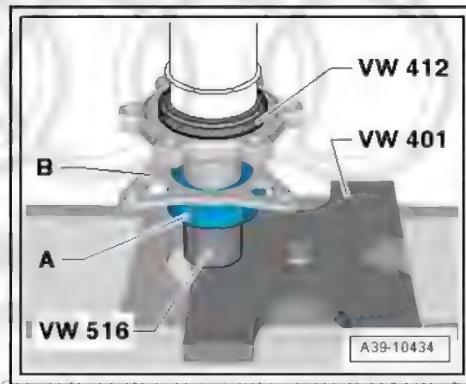




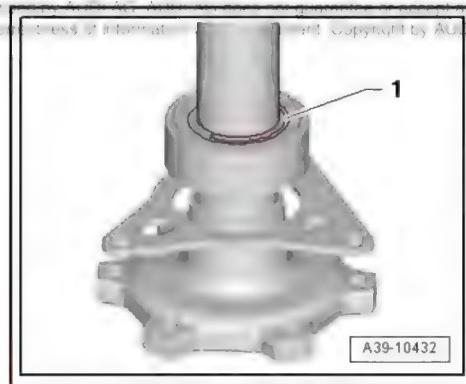
- Press ball bearing -A- off flange shaft.



- Place mounting bracket -B- on ball bearing.
- Installation position of mounting bracket: lettering on mounting bracket faces towards flange.
- Press new ball bearing -A- onto flange shaft as far as stop.



- Fit new circlip -1- in annular groove on flange shaft.
- Install flange shaft (left-side) [⇒ page 132](#).



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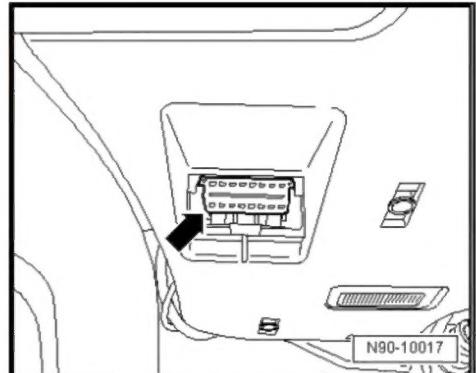
5 Gearbox control system

⇒ "5.1 Overview of fitting locations - gearbox control system",
page 139

5.1 Overview of fitting locations - gearbox control system

Diagnostic connection

- ◆ Fitting location: The diagnostic connection for the vehicle diagnostic tester is located in the driver's footwell.

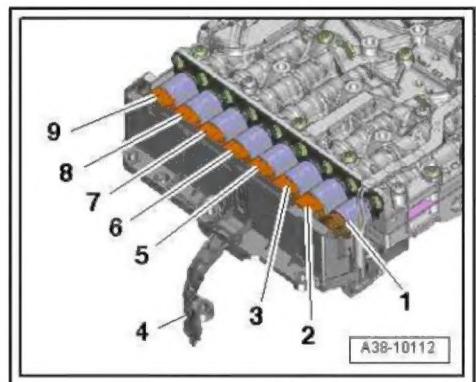


Mechatronic unit, automatic gearbox control unit - J217-, senders and pressure regulating valves - part 1

- ◆ Fitting location: the mechatronic unit is bolted to the underside of the gearbox housing and covered by the ATF oil pan.

The mechatronic unit incorporates the hydraulic control system, the electronic control unit and the sensors and actuators as a complete synchronised unit. This includes:

- 1 - Solenoid valve 1 - N88-
- 2 - Automatic gearbox pressure regulating valve 7 - N443-
- 3 - Automatic gearbox pressure regulating valve 6 - N371-
- 4 - Gearbox output speed sender - G195-
- 5 - Automatic gearbox pressure regulating valve 3 - N217-
- 6 - Automatic gearbox pressure regulating valve 5 - N233-
- 7 - Automatic gearbox pressure regulating valve 2 - N216-
- 8 - Automatic gearbox pressure regulating valve 4 - N218-
- 9 - Automatic gearbox pressure regulating valve 1 - N215-



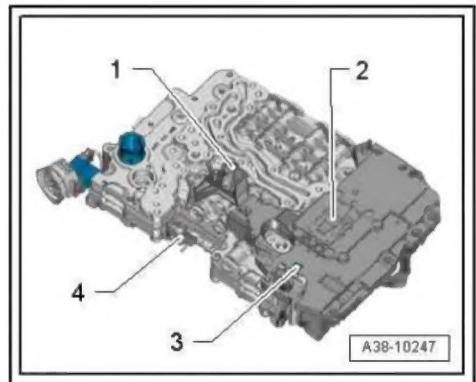
Mechatronic unit, automatic gearbox control unit - J217-, senders and pressure regulating valves - part 2

- 1 - Gearbox input speed sender - G182-
- 2 - Automatic gearbox control unit - J217-
- 3 - Gearbox oil temperature sender - G93
- 4 - Gear sensor - G676-



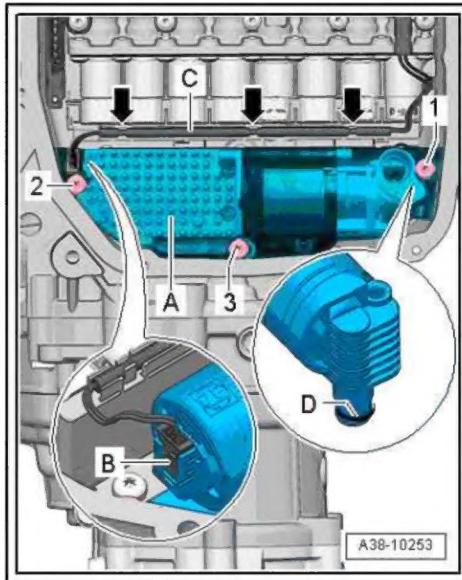
- ◆ All components mentioned are tested via self-diagnosis.
- ◆ The mechatronic unit can only be replaced as a complete unit.

⇒ Servicing 8-speed automatic gearbox; Rep. gr. 38 ; Mechatronic unit; Removing and installing mechatronic unit .



Auxiliary hydraulic pump 1 for gearbox oil - V475- , -A-

⇒ Servicing 8-speed automatic gearbox; Rep. gr. 38 ; ATF system; Removing and installing auxiliary hydraulic pump for gearbox oil



Selector lever position display - Y6-

◆ Fitting location: The selector lever position display - Y6- is integrated in the instrument cluster.



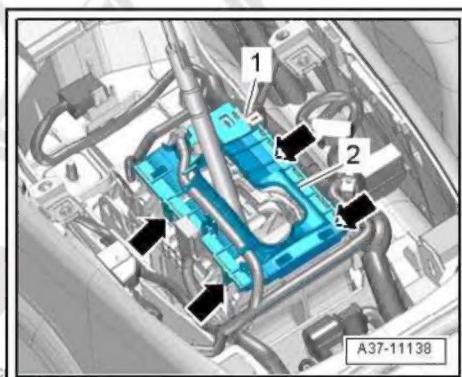
If the selector lever position display is defective, the instrument cluster must be renewed ⇒ Electrical system; Rep. gr. 90 ; Dash panel insert; Exploded view - dash panel insert .



Selector lever sensors control unit - J587- and tiptronic switch - F189-

◆ Fitting location: the selector lever sensors control unit - J587- and the tiptronic switch - F189- are combined in a single component -2- which is clipped onto the shift unit -arrows-.

⇒ [“1.11 Removing and installing selector lever sensors control unit J587 ”, page 38](#)

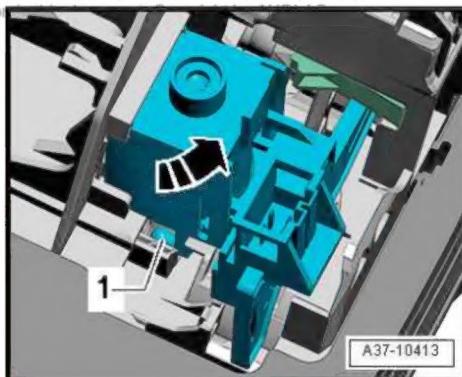


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Selector lever lock solenoid - N110-

◆ Fitting location: the selector lever lock solenoid - N110- -item 1- is clipped onto the selector mechanism.

⇒ [“1.10 Removing and installing selector lever lock solenoid N110 ”, page 36](#)



Gear selector position P switch - F305-

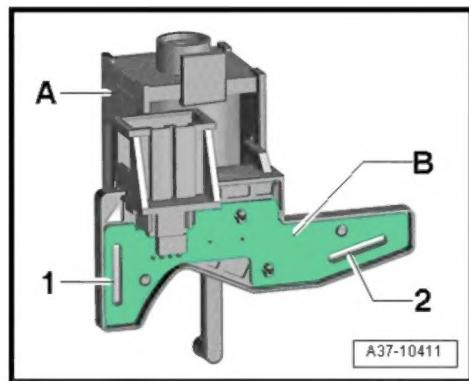
- ◆ Fitting location: Gear selector position P switch - F305- consists of two reed contacts (-1- and - 2-) and is installed on printed circuit board -B- in selector lever lock solenoid - N110-A-.



Note

Gear selector position P switch - F305- can only be renewed together with selector lever lock solenoid - N110- .

⇒ [“1.10 Removing and installing selector lever lock solenoid N110”, page 36](#)



Kickdown switch - F8-

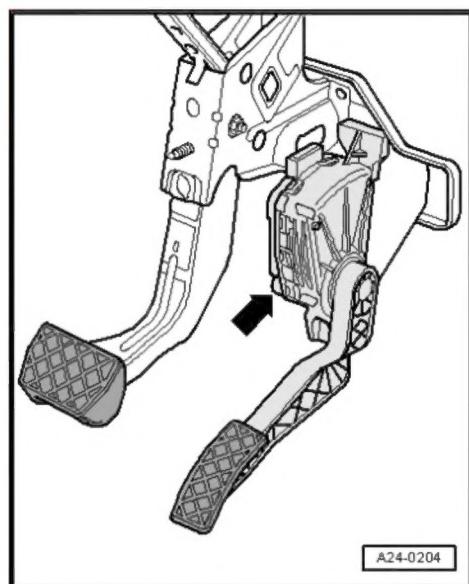
A programmed value from accelerator position sender - G79- / accelerator position sender 2 - G185- (integrated in accelerator pedal module) is stored in the engine control unit as the kickdown signal.

- ◆ Fitting location: the accelerator position senders are integrated in the accelerator pedal module -arrow-.



Note

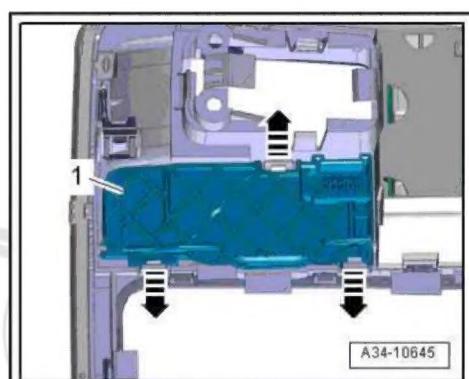
The accelerator pedal module must be renewed if one of the accelerator position senders is defective ⇒ Fuel supply system, petrol engines; Rep. gr. 20 ; Accelerator mechanism; Removing and installing accelerator pedal module with accelerator position sender -G79- / -G185- .



Selector lever position display - Y26-

- ◆ Fitting location: selector lever position display - Y26- -item 1- is clipped into multimedia system operating unit - E380- .

Removing and installing ⇒ Electrical system; Rep. gr. 96 ; Lights; Removing and installing selector lever position display - Y26-

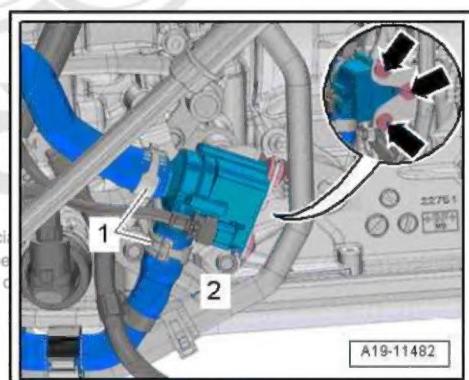


Gearbox oil cooling pump - V478-

- ◆ Fitting location: On gearbox (left-side).

Removing and installing ⇒ Rep. gr. 19 ; Coolant pump/thermostat assembly; Removing and installing electric coolant pump

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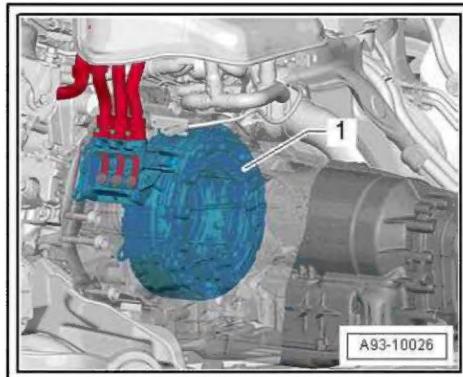


Electric drive motor - V141-

The disengagement clutch in the electric drive motor - V141- disengages the engine from the electric drive motor - V141-. The disengagement clutch is also designated "disengagement clutch F", or just "clutch F".

- ◆ Fitting location: electric drive motor - V141- item 1- is installed in the gearbox housing in place of the torque converter ⇒ Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor; Exploded view - electric drive motor .

Removing and installing ⇒ Electrical system, hybrid; Rep. gr. 93 ; Electric drive motor; Removing and installing electric drive motor .



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